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GREAT LAKES FORESTRY CENTRE
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A review of important forest insect and disease problems in the KAPUSKASING DISTRICT of Ontario, 1950 - 1980

Compiled by

H. J. Weir, M. J. Thomson,
D. C. Constable and H. Brodersen

Miscellaneous Report No. 35

Canada

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THE GREAT LAKES FORESTRY CENTRE

The Great Lakes Forestry Centre is one of six regional establishments located across Canada and operated by the Canadian Forestry Service. The overall objective of the Service is to promote the preservation, enhancement and wise use of a healthy, attractive and bountiful forest resource and terrestrial environment for the economic and social benefit of all Canadians. The Centre pursues this objective by conducting two major programs: research and technical services and forestry development. Both programs address major problems affecting forest management and the forest environment primarily in Ontario, but because of the transprovincial nature of the forest resource, many elements of our research program are of national significance.

Forestry problems are continually assessed by the Canada-Ontario Joint Forestry Research Committee, made up chiefly of senior members of the Centre and the Ontario Ministry of Natural Resources. The Committee ensures that the research resources of both agencies are effectively transmitted to the forest managers in order to improve forest production and protection, and the quality of the environment.

Staff of the forestry development program negotiate and administer federal-provincial cost-sharing agreements with the province of Ontario, conduct economic studies, and assist in implementing job creation programs in the forest sector. Again, this requires close co-operation with the Ontario Ministry of Natural Resources and with other provincial and federal agencies concerned with the forest sector.

Close working relations are also maintained by the Centre with educational institutions specializing in forestry and the biological sciences, with the forest industry, and with other forestry organizations in the province.

The Centre recognizes that forested land must be managed in the best public interest, not only for the wood production essential to our economy but also for the recreational purposes that are so important to our social well-being. These goals must be achieved in a manner that will maintain or improve the quality of the forest environment and preserve it for generations to come.

A REVIEW OF IMPORTANT FOREST INSECT AND DISEASE PROBLEMS IN THE KAPUSKASING DISTRICT OF ONTARIO, 1950-1980

Compiled by

H.J. Weir, M.J. Thomson, D.C. Constable and H. Brodersen[1]

GREAT LAKES FORESTRY CENTRE
CANADIAN FORESTRY SERVICE
GOVERNMENT OF CANADA
1986

MISCELLANEOUS REPORT NO. 35

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[1] *Forest Research Technicians, Forest Insect and Disease Survey Unit*

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FOREWORD

The first forest insect surveys in Ontario were carried out in 1936 from the Dominion Entomological Laboratory in Ottawa and continued from this location until 1944, when the province of Ontario was divided, for the purpose of these surveys, into northern and southern Ontario. In 1945, personnel from Ottawa continued to conduct and report on surveys in the area south of the Algonquin Park and Parry Sound forest districts, while personnel from the Forest Insect Laboratory in Sault Ste. Marie carried out surveys in the area to the north. In 1950 responsibility for reporting insects for all of Ontario fell to the Sault Ste. Marie laboratory. In 1952 the Forest Disease Survey was initiated with headquarters in Maple, Ontario, then was moved to Sault Ste. Marie in 1967. The results of these surveys of insects and diseases are reported in the Annual Report of the Forest Insect and Disease Survey (FIDS) published by Canadian Forestry Service headquarters in Ottawa. In addition, annual district and regional reports, begun in 1948, are prepared by FIDS technicians (Rangers) in Sault Ste. Marie. In 1980 a new provincial report was released in Ontario. The contents of the following review have been abstracted from these reports and compiled in alphabetical order by the scientific names of species in each of the following categories:

Major Insects or Diseases

Capable of causing serious injury to or death of living trees or shrubs.

Minor Insects or Diseases

Capable of causing sporadic or localized injury but not usually a serious threat to living trees or shrubs.

Abiotic Damage

Damage caused by non-living factors.

All measurements in this review are in metric form and conversions from Imperial measurements given in the earliest reports are taken to the second decimal point [i.e., sq. mi. to km^2 = area (sq. mi.) x 2.59 = area km^2]. Infestation maps in this review were copied from the original maps in the FIDS technicians' reports. Abbreviations for the common names of the host tree species, along with the scientific names, are shown in Appendices A and B. To facilitate the location of hosts, deciduous and coniferous species have been separated and listed alphabetically under the common names.

Appendix C is a series of maps for northeastern Ontario grouped alphabetically by insect species or disease pathogen and showing the location of infestations within a region or infestation boundaries that extend beyond regions.

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We also wish to acknowledge the following authors of the FIDS district and regional reports from which this review was abstracted.

1950–1953	J. Belcher
1954–1956	J.F. Robinson
1957	F. A. Bricault
1958	F.A. Bricault, J. Hook
1959	D.F. Lynn
1960–1966	G.T. Atkinson
1967	F.F. Foreman
1968–1969	J. Baker
1970–1973	H.R. Foster, J. Hook
1974	L.S. MacLeod, F. Livesey, J. Hook
1975–1977	L.S. MacLeod, H.J. Evans, J. Hook
1978–1979	L.S. MacLeod, H.J. Evans, W.A. Ingram
1980	L.S. MacLeod, D.C. Constble, W.A. Ingram

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INTRODUCTION

This report is a review of significant forest insects and diseases that have occurred in the Kapuskasing District throughout the period 1950 to 1981, with a brief summary of outbreaks prior to 1950. In the selection of pests for this report particular attention was paid to the major working groups of host species in the area, namely hardwoods (birch, poplar) and conifers (jack, red and white pine, balsam fir, white and black spruce and larch). The insects and diseases included are capable of causing or have caused tree mortality or a reduction in growth. Also included are abiotic problems that cause tree damage, i.e., frost, wind and snow damage.

SUMMARY

FOREST INSECTS

Birch Skeletonizer, *Bucculatrix canadensisella* Cham. [Major]
pages 9-13

Defoliation by this insect seldom causes tree mortality of the host but the weakened trees are subject to attack by secondary insects and diseases and may be a predisposing factor in "birch decline". Severe defoliation was reported in 1954, 1964, 1965 and 1971. No severe defoliation was observed prior to 1953.

Large Aspen Tortrix, *Choristoneura conflictana* (Wlk.) [Major]
pages 14-18

No tree mortality has been recorded as caused by this aspen defoliator, which affects primarily aspen and poplar. Severe defoliation was reported between 1972 and 1975. Low numbers were observed from 1956 to 1980.

Spruce Budworm, *Choristoneura fumiferana* (Clem.) [Major]
pages 19-43

This insect is considered the most destructive insect pest of several coniferous hosts in eastern Canada, the main hosts being white spruce and balsam fir. Though not major hosts, black spruce and tamarack are attacked and considerable tree mortality can occur. This report shows the decline of an infestation that was reported between 1947 and 1952, with lower populations prevailing until 1967 when the current infestation started. Tree mortality of balsam fir was first observed in 1975 and progressed to widespread tree mortality of balsam fir and white spruce in 1980.

Larch Casebearer, *Coleophora laricella* (Hbn.) [Major]
page 44

Populations of this insect have remained low in the District since it was first recorded in 1962.

Aspen Defoliators, *Enargia decolor* (Wlk.), *Epinotia solandriana* L., *Gonioctena americana* (Schaef.), and *Pseudexentera oregonana* Wlshm. [Major]
pages 45-47

No tree mortality has been recorded as caused by this complex of defoliators, which affects primarily aspen and poplar. Varying degrees of defoliation have been recorded since 1954.

Forest Tent Caterpillar, *Malacosoma disstria* Hbn. [Major]
pages 48-60

Outbreaks of this insect occurred between 1940 and 1944, in 1948, from 1948 to 1954, and from 1973 to 1980. Trembling aspen, the preferred host, is seldom killed in an outbreak but secondary insects and diseases can cause mortality in weakened trees.

Whitespotted Sawyer, *Monochamus scutellatus* (Say) [Major]
pages 61-62

The larvae of this insect feed in the skidway logs and the adults feed on the twigs of both black and white spruce and jack pine. Heavy damage to branch tips occurred in 1955, and from 1977 to 1980. Low populations have been observed periodically since 1956.

Pine Sawflies, *Neodiprion compar* (Leach), *N. maurus* Leach, *N. nanulus nanulus* Schedl., *N. nigroscutum* (Midd.), *N. pratti banksianae* Roh. and *N. virginianus* complex [Major]
pages 63-64

These sawflies are capable of causing mortality of semimature and plantation trees when populations are high. Varying degrees of defoliation have been recorded periodically since 1954, with severe defoliation being reported only in 1975.

Northern Pitch Twig Moth, *Petrova albicapitana* (Busck) [Major]
pages 64-65

Normally, high populations of this insect on twigs of trees cause only aesthetic damage but when high populations occur on leaders, tree height is reduced. High populations occurred only in 1967-1968. Low populations have prevailed since 1955.

Aspen Leafblotch Miner, *Phyllonorycter ontario* (Free.) [Major]
pages 65-66

Although this is not an extremely damaging insect, loss of increment during severe infestations is damaging to aspen stands. Varying degrees of infestation have prevailed in the District since 1950.

Yellowheaded Spruce Sawfly, *Pikonema alaskensis* (Roh.) [Major]
pages 66-67

This insect is a serious pest of open-growing trees, ornamentals, and also stands and plantations of young spruce. Although no large areas of mortality have occurred in the district, severe defoliation and single-tree mortality have occurred since 1950.

White Pine Weevil, *Pissodes strobi* (Peck) [Major]
pages 67-68

This weevil, by attacking the leaders of small spruce and pine trees, causes a reduction in height growth and after a few years of attack, "cabbaging" occurs. Varying degrees of infestation have occurred since 1950 and leader damage has varied from a reported low of 1% to a high of 64%.

Larch Sawfly, *Pristiphora erichsonii* (Htg.) [Major]
pages 69-70

Severe defoliation by this sawfly for 6 to 9 years can cause tree mortality. High populations were recorded during the periods 1954-1955, 1958-1959, and 1976-1977. Light-to-moderate defoliation has occurred periodically since 1950.

Mountain-ash Sawfly, *Pristiphora geniculata* (Htg.) [Major]
page 70

Although mountain-ash trees are not considered merchantable, a great number are utilized as shade trees and ornamentals in rural and urban areas. This insect can weaken trees when prolonged severe defoliation occurs and subsequent borer infestations can cause tree mortality. The insect was first observed in 1961 and has caused varying degrees of defoliation since then.

Ambermarked Birch Leafminer, *Profenusa thomsoni* (Konow) [Major]
page 71

Browning of foliage is usually restricted to individual shade trees, but when infestations build up, stands of birch trees are infested. Prolonged defoliation can weaken trees, which are then predisposed to disease and borer attacks. Severe infestations were present from 1958 to 1969. Lower populations have occurred periodically since 1956.

Other Noteworthy Insects [Major and Minor]
pages 71-78

These are insects with the potential for causing damage to stands, regeneration and plantations.

FOREST DISEASES

Armillaria Root Rot, *Armillaria mellea* (Vahl: Fr.) Kummer [Major]
page 81

This root rot is capable of killing both weakened and healthy trees and is a particularly serious pest in pine and spruce plantations that have been planted around old stumps. Light tree mortality occurred in a spruce plantation in 1972 and 1973. Light damage has been observed periodically since 1963.

Scleroderris Canker, *Ascocalyx abietina* (Lagerb.) Schläpfer-Bernhard
pages 81-83 [Major]

This disease can cause mortality of young trees up to the age of 3 to 4 years. The pathogen was first reported in the District in 1966 and has fluctuated in intensity until the present.

Spruce Needle Rust, *Chrysomyxa ledi* (Alb. & Schwein.) de Bary [Major]
and *C. ledicola* (Peck) Lagerh.
page 84

Severe infections of spruce foliage can cause a loss of increment in trees when prolonged infection occurs. Varying degrees of infection have occurred since 1954.

Ink Spot of Aspen, *Ciborinia whetzelii* (Seaver) Seaver [Major]
pages 84-85

No tree mortality caused by this disease has been recorded. Severe infections have been reported in 1958, 1959, 1965, 1970, 1973 and 1974.

Sweet Fern Blister Rust, *Cronartium comptoniae* Arthur [Major]
pages 85-86

Only light infections were reported in 1958, 1971 and 1979.

White Pine Blister Rust, *Cronartium ribicola* J.C. Fischer [Major]
page 86

Very low levels of infection were reported from 1963 to 1965 and from 1971 to 1973. Moderate levels were reported in 1978 and 1979.

Jack Pine Needle Cast, *Davisomycella ampla* (J. Davis) Darker [Major]
page 86-87

This disease can cause severe defoliation when incidence is high. Severe infection levels were reported in 1980. The disease was not reported prior to 1960.

Western Gall Rust, *Endocronartium harknessii* (J.P. Moore) [Major]
page 87

Low levels of infection were reported in 1970, 1973-1974, 1979 and 1980. High levels were reported in 1975 and 1976.

Hypoxylon Canker, *Hypoxylon mammatum* (Wahlenb.) J. Miller [Major]
page 88

This disease usually attacks the stems of immature trees between 7.6 to 12.7 cm in diameter growing on poor sites, but also attacks upper stems and branches of larger trees. The disease has been common in aspen stands in varying degrees since the inception of the Forest Disease Survey in 1953.

Larch-poplar Rust, *Melampsora medusae* Thüm. [Major]
page 88

This disease does not cause damage to trees except for a loss of increment when infection is high. Low levels of infection were recorded between 1963 and 1966.

Shoot Blight, *Venturia macularis* (Fr.) E. Müller and v. Arx [Major]
page 89

Reduced stocking of reproduction aspen occurs when the incidence of this disease is high. High incidence was reported in 1963 and 1964 and again in 1976 at separate locations. This disease was not reported in the District before 1963.

ABIOTIC DAMAGE

page 93-94

This condition is caused by a variety of influences, e.g., frost, wind and hail.

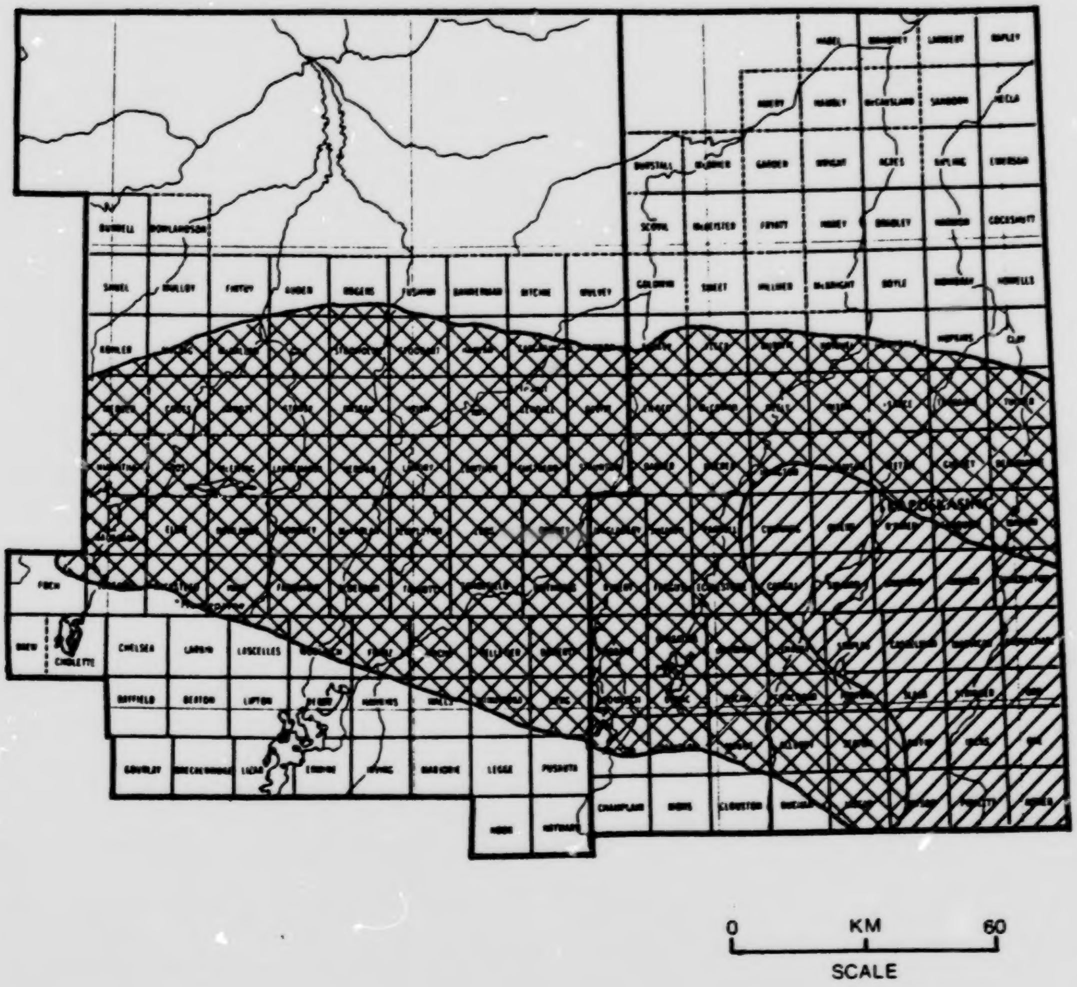
INSECTS

Birch Skeletonizer, *Bucculatrix canadensisella* Cham.

Host(s): wB [Major]

Year	Remarks
1950-1953	not reported
1954	Moderate-to-severe defoliation in the southern and eastern parts of the District
1955	decline to low levels
1956-1962	not reported
1963	low populations in Macvicar Twp
1964	Moderate-to-severe defoliation, with large areas of light defoliation in the southern part of the District (see map, page 10).
1965	Moderate-to-severe defoliation in Opasatika, Ecclestone, Usnac, O'Brien, Nansen and Fauquier twps; light defoliation at other locations
1966	Infestations declined.
1967	very light populations
1968	light populations in O'Brien and Seaton twps
1969-1970	not reported
1971	Moderate-to-severe defoliation occurred in the southwestern part of the District (see map, page 11).
1972	light populations in Fauquier Twp (see map, page 12).
1973	A slight increase in populations occurred south of Kapuskasing (see map, page 13).
1974-1980	not reported

HEARST AND KAPUSKASING DISTRICTS


KAPUSKASING
CHELSEA
LASCELLES
LIPTON
LEGGE
CHAMPLAIN
CLOUSTON
FOCH
HOWELLS
COCKSHUTT
0
KM
60
SCALE

BIRCH SKELETONIZER

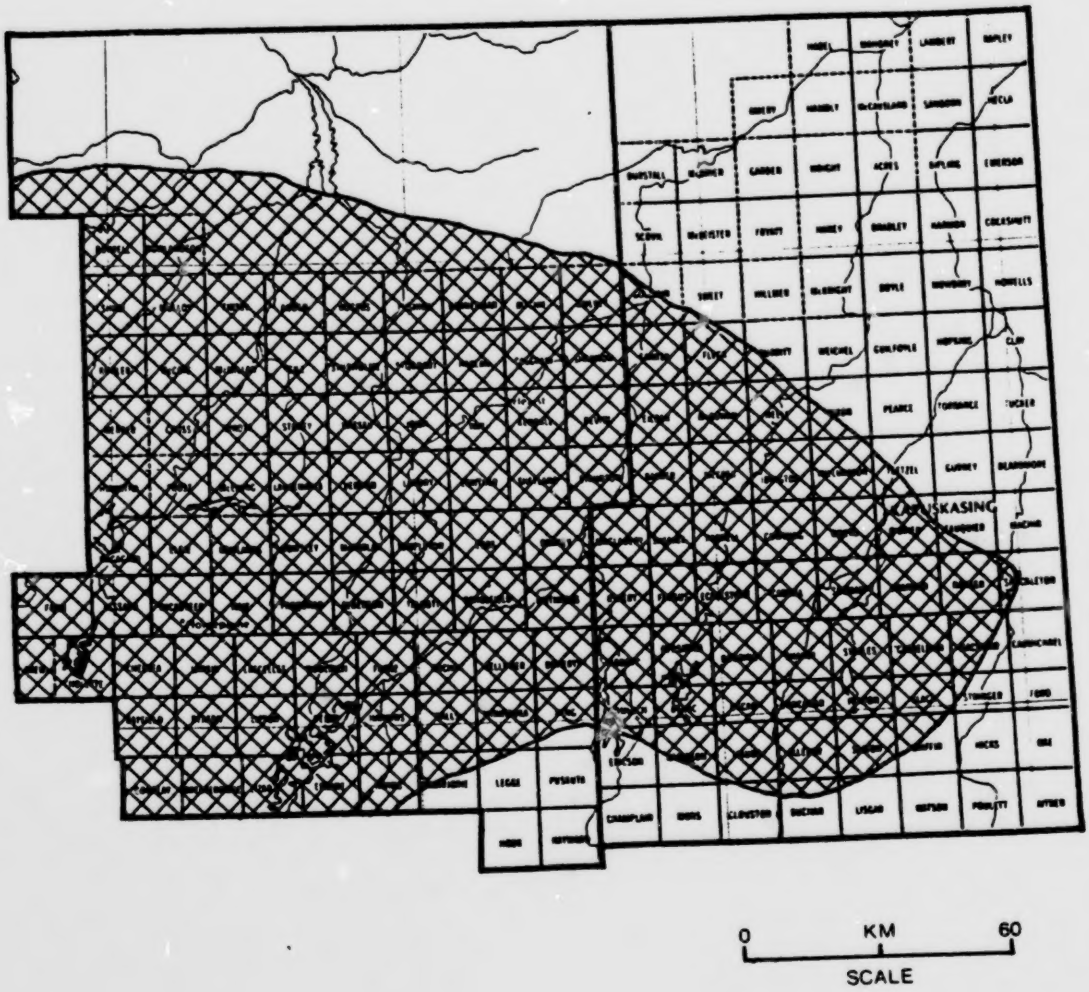
Areas within which defoliation occurred in 1964

LEGEND

Light defoliation ▨

Moderate-to-severe defoliation ▩

HEARST AND KAPUSKASING DISTRICTS


KAPUSKASING
0
KM
60
SCALE

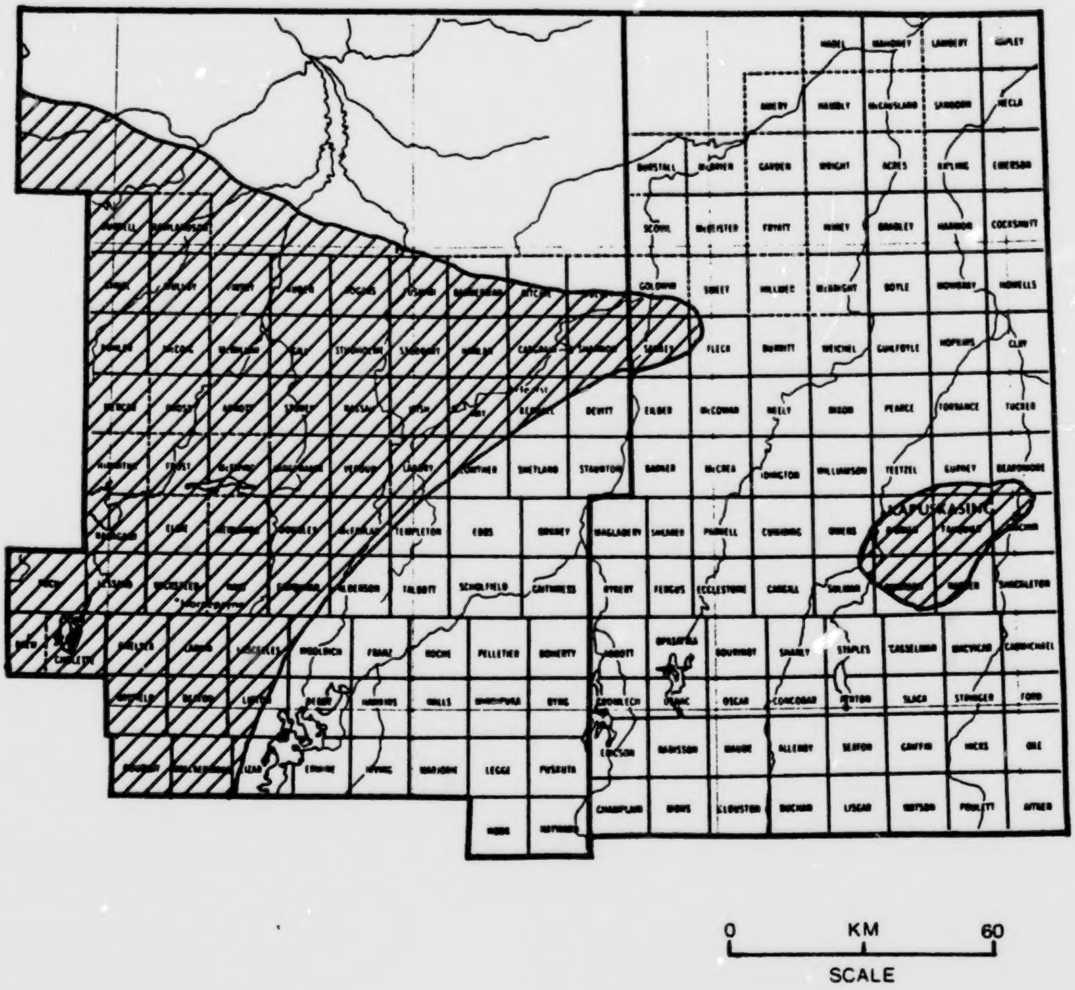
BIRCH SKELETONIZER

Areas within which defoliation occurred in 1971

LEGEND

Moderate-to-severe defoliation ▨

HEARST AND KAPUSKASING DISTRICTS


KAPUSKASING
0
KM
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SCALE

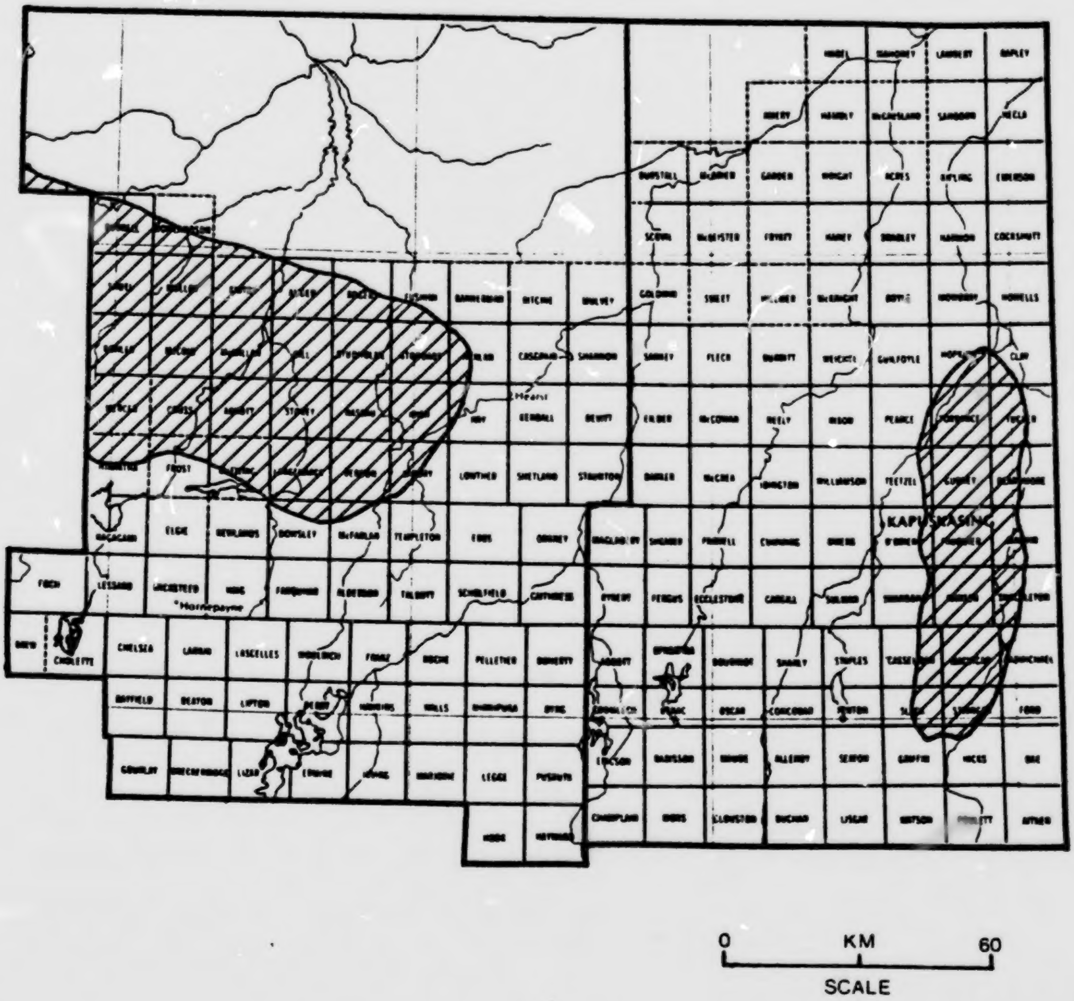
BIRCH SKELETONIZER

Areas within which defoliation occurred in 1972

LEGEND

Light defoliation ▨

HEARST AND KAPUSKASING DISTRICTS


Hearst
Hornepayne
KAPUSKASING
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SCALE

BIRCH SKELETONIZER

Areas within which defoliation occurred in 1973

LEGEND

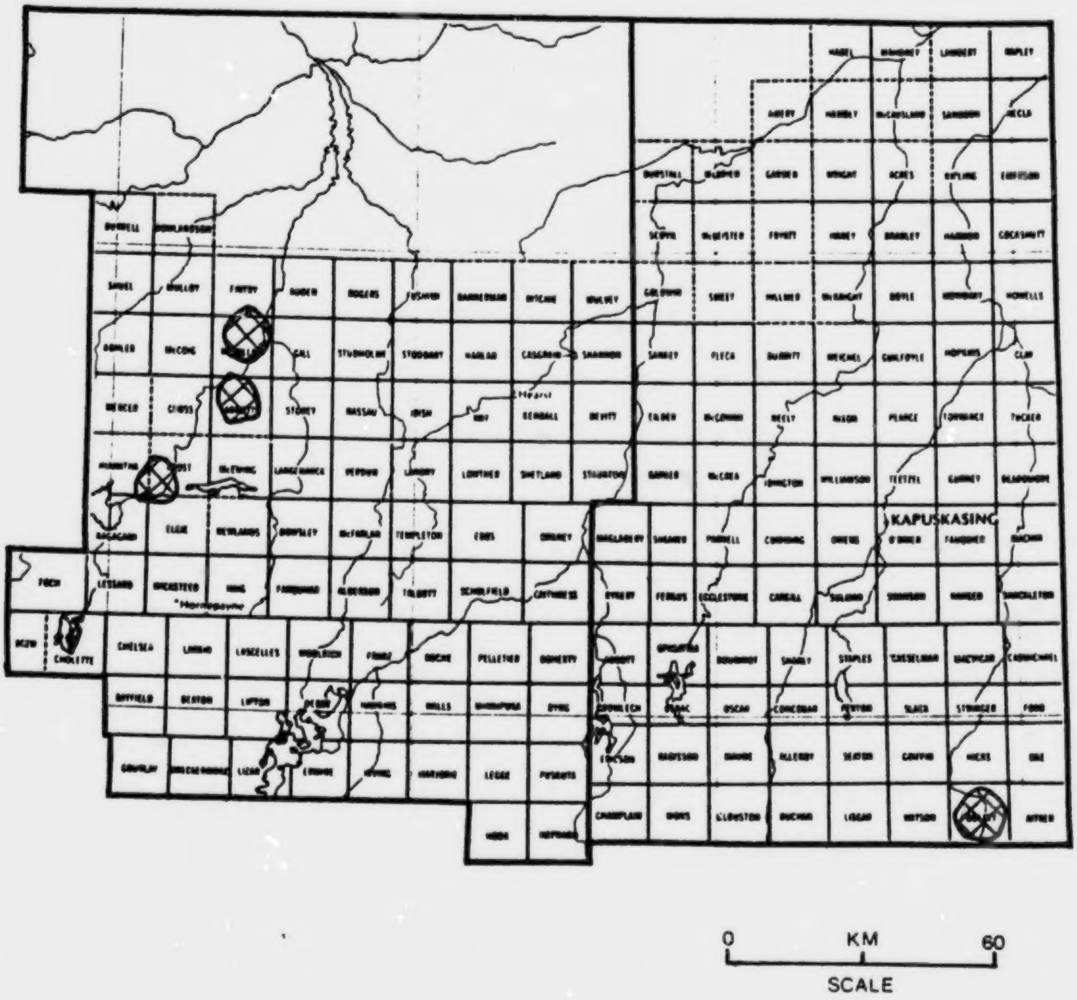
Light defoliation ▨

Large Aspen Tortrix, *Choristoneura conflictana* (Wlk.)

Host(s): aspen [Major]

Year	Remarks
1950-1955	not reported
1956	low populations general in the District
1957-1966	not reported
1967	low populations in Fergus and Shearer twps
1968-1970	not reported
1971	low populations in Poulett Twp (see map, page 15)
1972	moderate-to-severe defoliation in the southern part of the District (see map, page 16).
1973	There was a decline in the area infested. Pockets of moderate-to-severe defoliation persisted in the southern part of the District (see map, page 17).
1974	three pockets of moderate-to-severe defoliation, one in the north and two in the southeastern part of the District (see map, page 18).
1975	severe defoliation occurred in the central part of the District. *Pseudexentera oregonana* Clem. was found in conjunction with the tortrix.
1976	There were very low numbers in the District; *P. oregonana* was the principal defoliator in the area of defoliation.
1977	There were very low numbers; defoliation by *P. oregonana* was moderate to severe.
1978-1980	not reported

HEARST AND KAPUSKASING DISTRICTS


KAPUSKASING
Hearst
Hornepayne
0
KM
60
SCALE

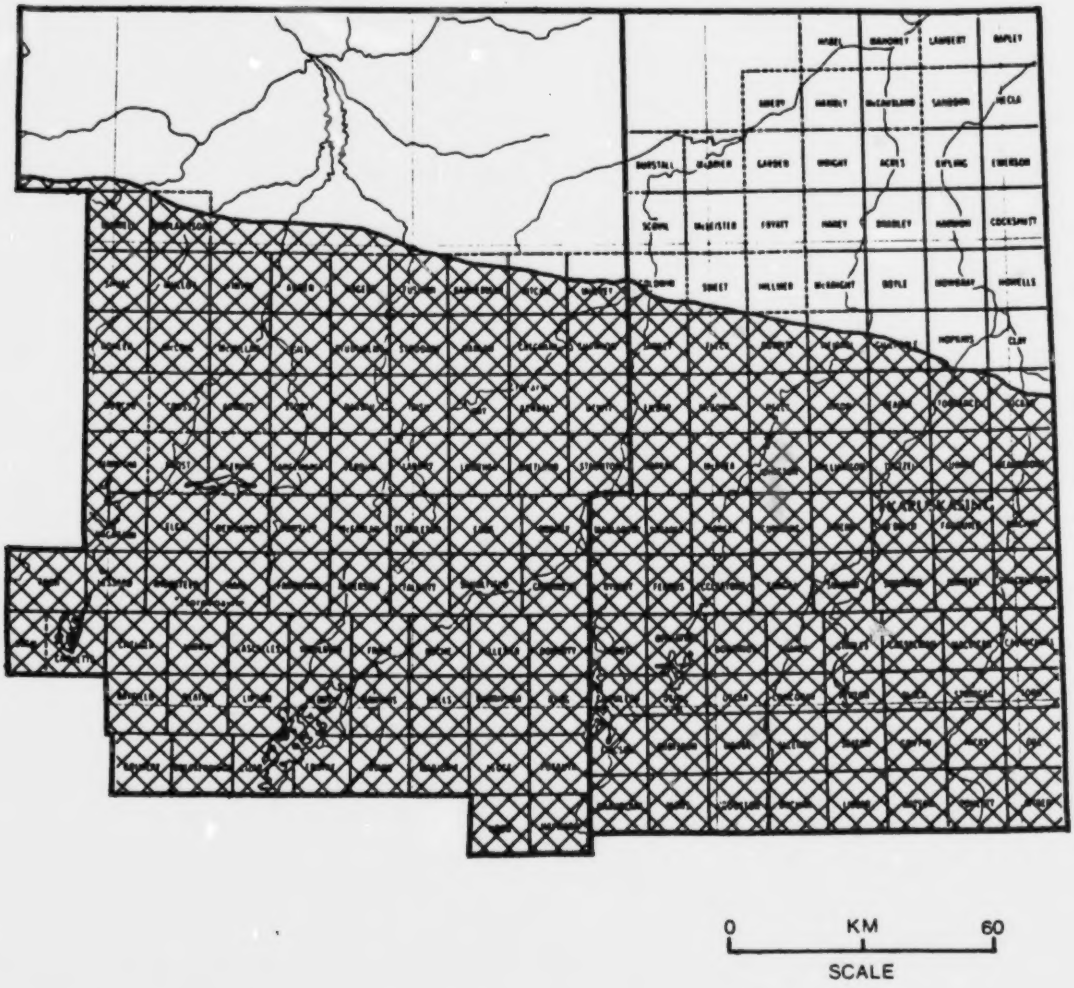
LARGE ASPEN TORTRIX

Areas within which defoliation
occurred in 1971

LEGEND

Moderate-to-severe defoliation ▨

HEARST AND KAPUSKASING DISTRICTS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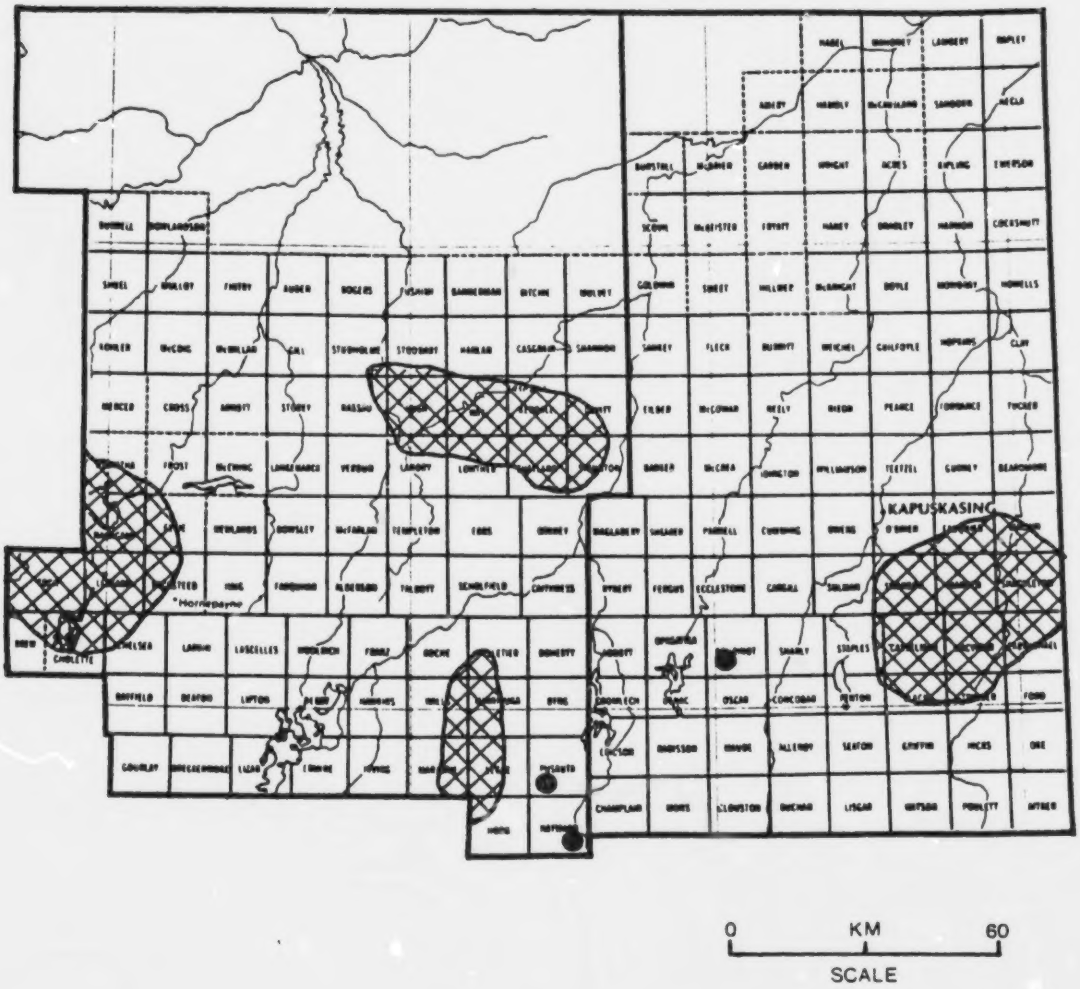
LARGE ASPEN TORTRIX

Areas within which defoliation occurred in 1972

LEGEND

Moderate-to-severe defoliation ▨

HEARST AND KAPUSKASING DISTRICTS


KAPUSKASING
Hornepayne
0
KM
60
SCALE

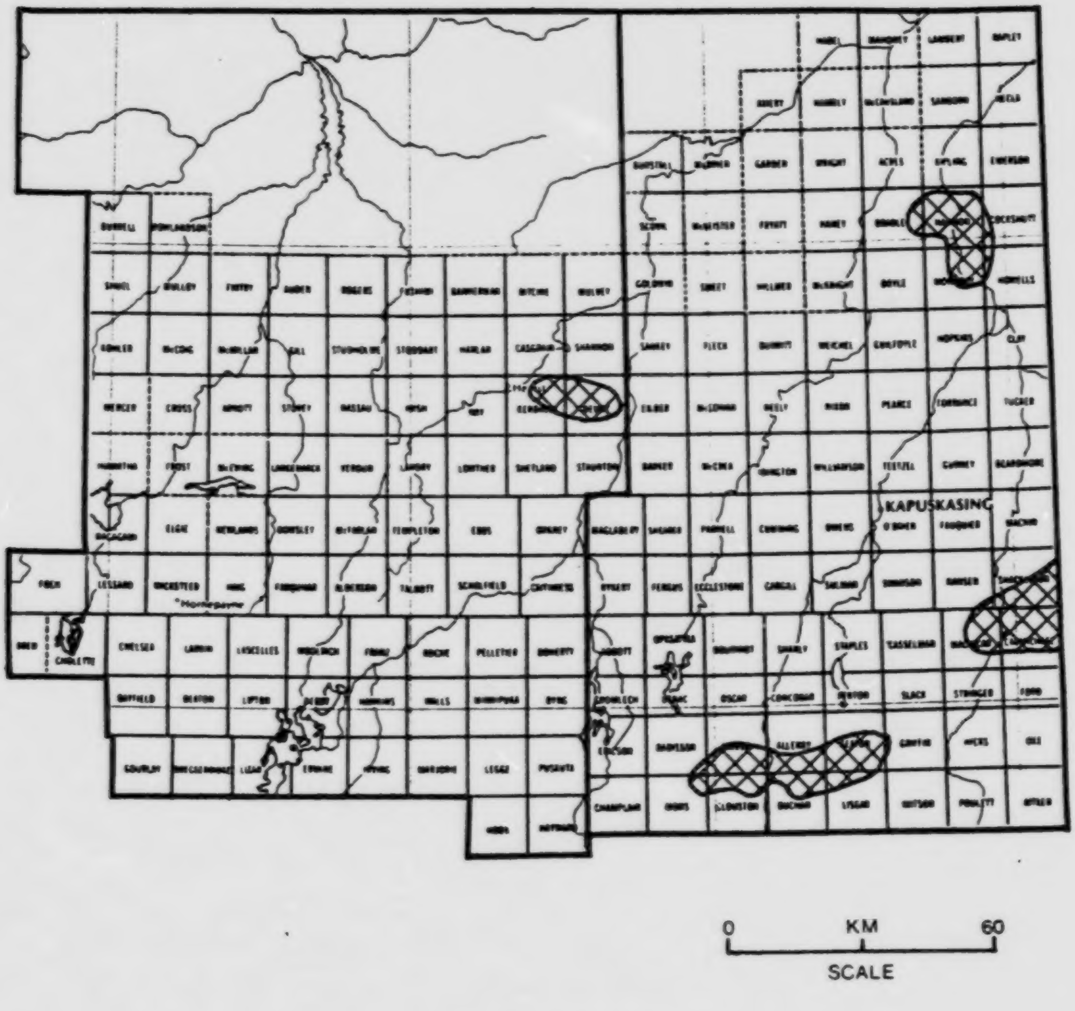
LARGE ASPEN TORTRIX

Areas within which defoliation occurred in 1973

LEGEND

Moderate-to-severe defoliation ● or ▨

HEARST AND KAPUSKASING DISTRICTS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KM
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SCALE

LARGE ASPEN TORTRIX

Areas with which defoliation occurred in 1974

LEGEND

Moderate-to-severe defoliation ▨

Spruce Budworm, *Choristoneura fumiferana* (Clem.)

Host(s): wS, bF, bS, tL [Major]

Year	Remarks
1950	decline in populations; moderate-to-severe defoliation in the area bounded by Clay Twp on the north, Ford Twp on the south, Sulman Twp on the west and the Cochrane District border on the east; light defoliation in the south (see map, page 21); balsam fir tree mortality recorded in the eastern part of the District (see map, page 22).
1951	A further decline occurred. Pockets of moderate-to-severe defoliation were observed in Fauquier, Gurney, Shackleton, Macvicar and Carmichael twps; there was light defoliation in other townships in the southern part of the District (see map, page 23)
1952	pockets of light infestation observed in the southern part of the district (see map, page 24); little change in tree mortality
1953	An increase in moderate-to-severe defoliation occurred in Carmichael and Seaton twps (see map, page 25). There was little change in mortality.
1954	moderate-to-severe defoliation in Carmichael, Shackleton, and Ford twps (see map, page 26)
1955	A decline to light intensity occurred along the Cochrane-Kapuskasing district border.
1956-1961	not reported
1962-1965	low populations in Gurney Twp
1966	not reported
1967	light defoliation in Torrance Twp
1968	light defoliation in Champlain, Mons, Buchan, Lisgar, Watson, Bourinot, Fergus, Parnell and Harmon twps.
1969	Moderate-to-severe defoliation in Champlain, Mons, Buchan, Lisgar and Watson twps.
1970	Severe defoliation persisted in the above townships (see map, page 27).

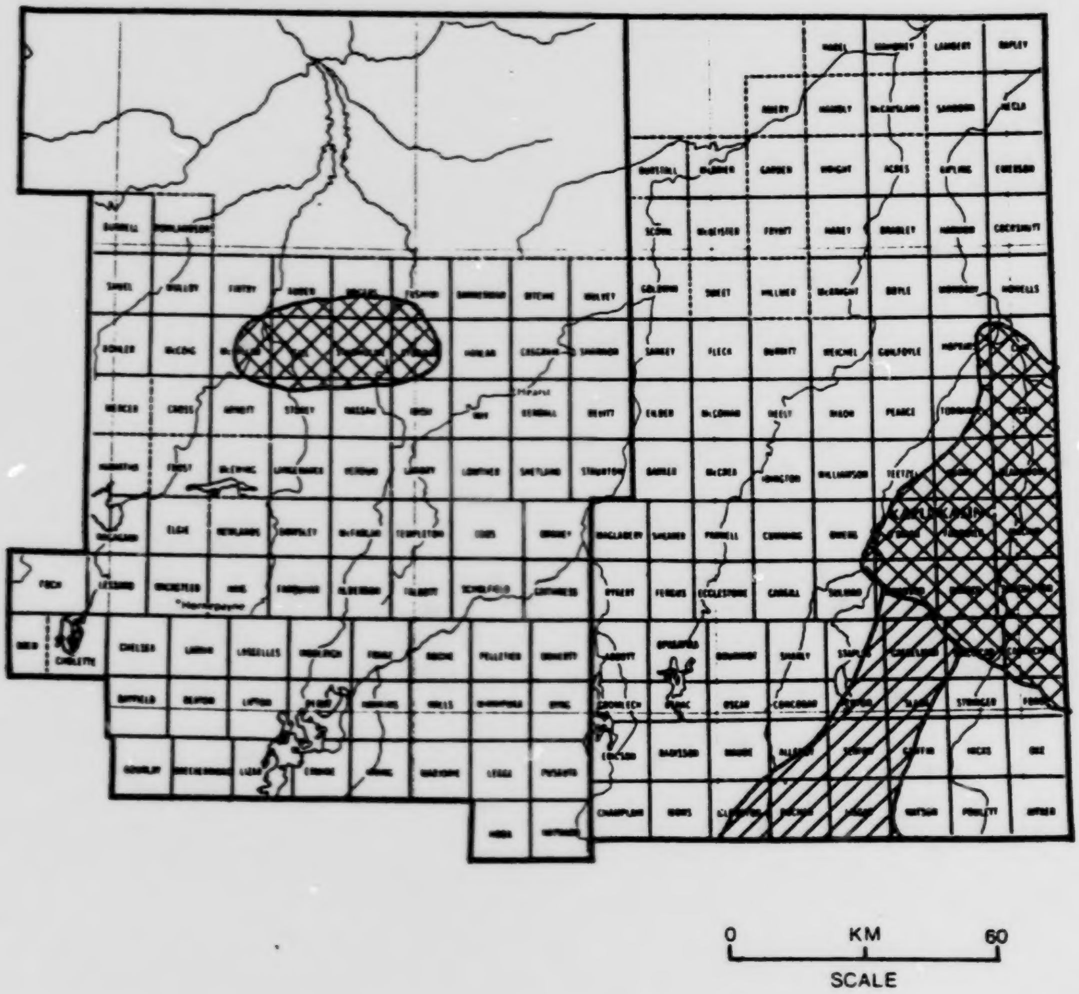
(cont'd)

Spruce Budworm, *Choristoneura fumiferana* (Clem.) (concl.)

Host(s): wS, bF, bS, tL [Major]

Year	Remarks
1971	Moderate-to-severe defoliation occurred in the southern part of the District (see map, page 28).
1972	Moderate-to-severe defoliation; little change in infestation boundaries (see map, page 29).
1973	pockets of moderate-to-severe defoliation in Opasatika, Mons, Abbott and Cromlech twps (see map, page 30).
1974	A northward spread occurred (see map, page 31).
1975	Infestation boundaries expanded east and north (see map, page 32). Balsam fir tree mortality occurred in Champlain and Mons twps (see map, page 33).
1976	a further extension in northern and eastern boundaries (see map, page 34); increases in tree mortality (see map, page 35).
1977	Infestation increases of up to 64 km occurred in the District (see map, page 36). There was increased tree mortality (see map, page 37).
1978	Almost the entire District had moderate-to-severe defoliation (see map, page 38). There was little change in tree mortality (see map, page 39).
1979	Infestations were found in most susceptible stands in the district (see map, page 40). Infestations were also observed along most watersheds that flow north. Tree mortality increased (see map, page 41).
1980	little change in populations (see map, page 42); increases in tree mortality (see map, page 43); a total of 146 ha of valuable trees sprayed with Cygon.

HEARST AND KAPUSKASING DISTRICTS



SPRUCE BUDWORM

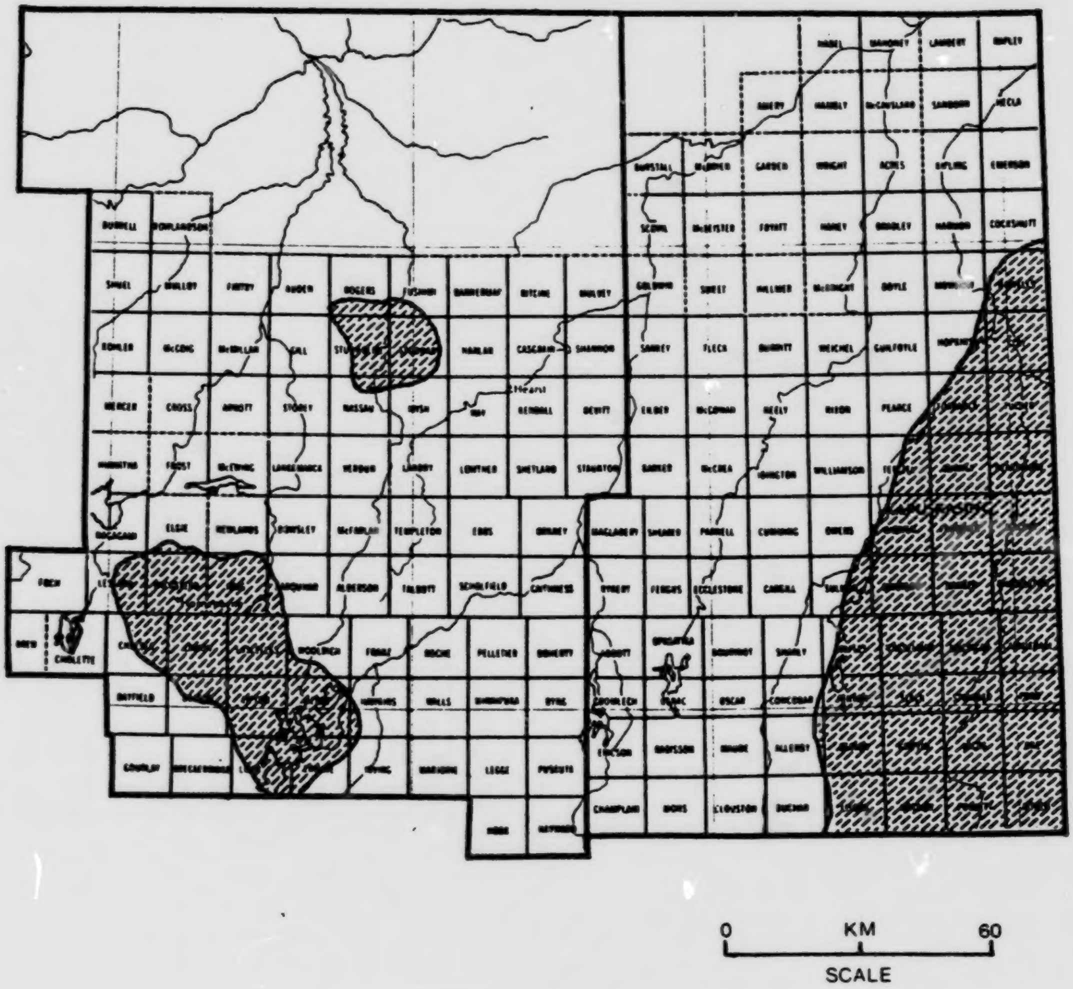
Areas within which defoliation
occurred in 1950

LEGEND

Light defoliation ▨

Moderate-to-severe defoliation ▩

HEARST AND KAPUSKASING DISTRICTS


Hearst
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SCALE

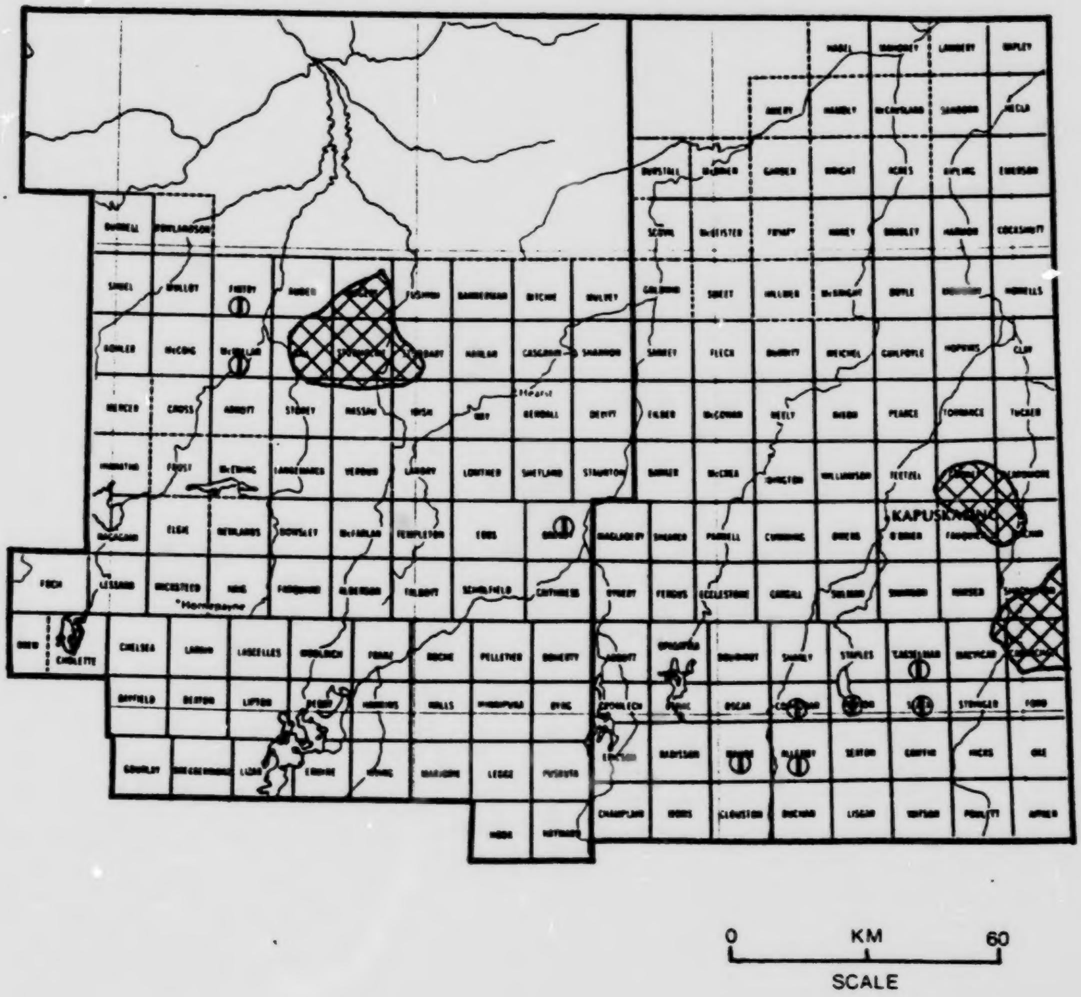
SPRUCE BUDWORM

Areas within which balsam fir whole tree and top mortality occurred in 1950

LEGEND

Mortality ▨

HEARST AND KAPUSKASING DISTRICTS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SPRUCE BUDWORM

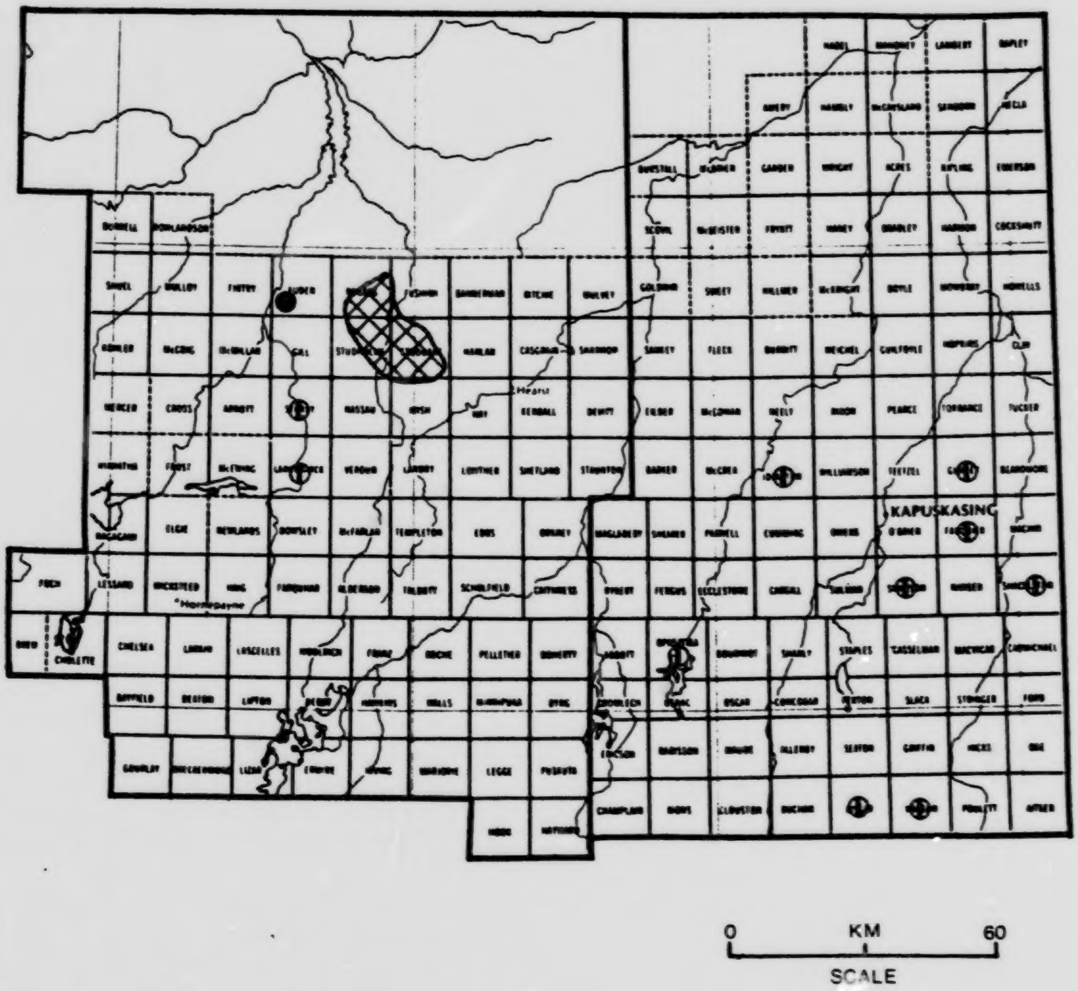
Areas within which defoliation occurred in 1951

LEGEND

Light defoliation ⦶

Moderate-to-severe defoliation ▩

HEARST AND KAPUSKASING DISTRICTS


KAPUSKASING
Hearst
Hornepayne
CHELSEA
LESSARD
ELGIE
TEMPLETON
McFARLAN
NASSAU
CROSS
ARNOTT
SHETLAND
LOWTHER
HANLAN
STAPLES
CASSELMAN
TUCKER
PEARCE
BOYLE
FLECK
ACRES
KIPLING
WRIGHT
GARDEN
0
KM
60
SCALE

SPRUCE BUDWORM

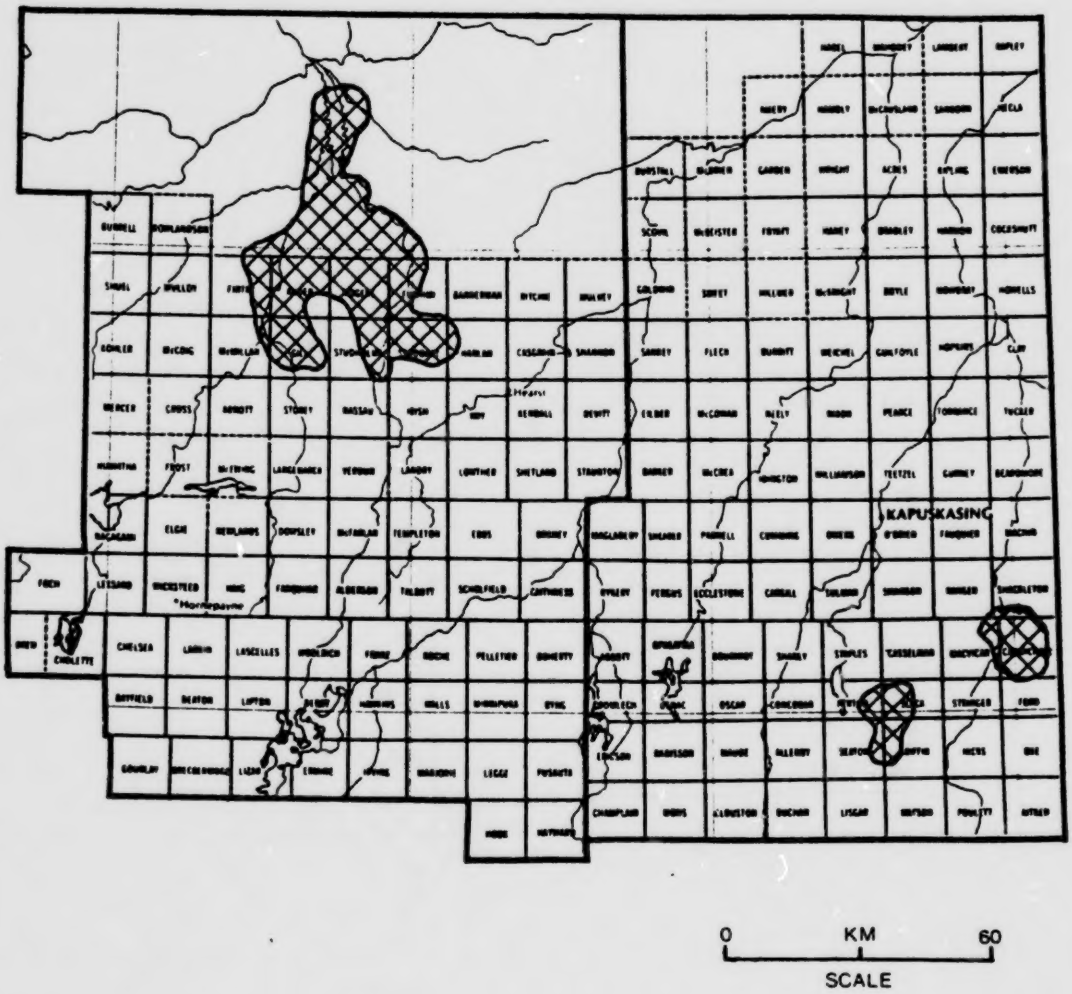
Areas within which defoliation
occurred in 1952

LEGEND

Light defoliation ⦶

Moderate-to-severe defoliation ● or ▩

HEARST AND KAPUSKASING DISTRICTS


KAPUSKASING
Hearst
Hornepayne
0
KM
60
SCALE

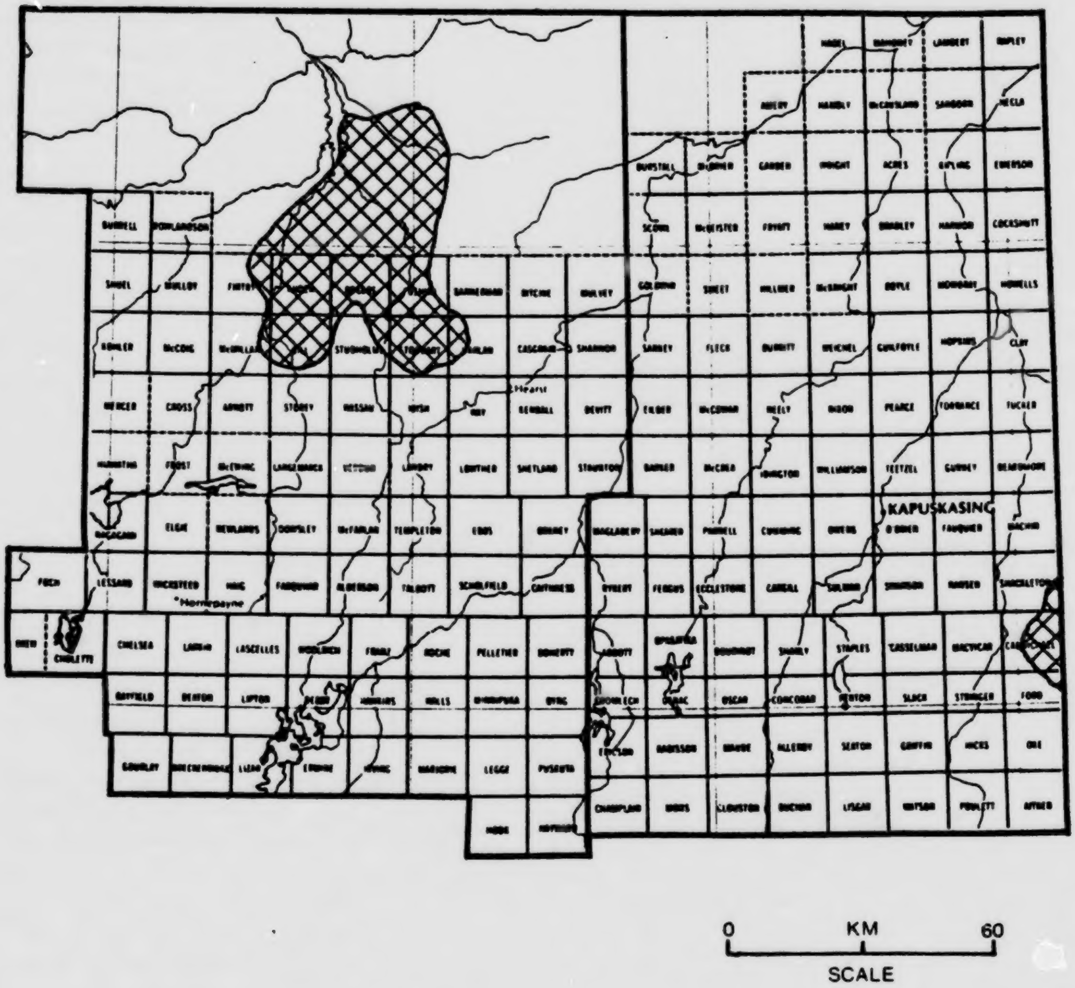
SPRUCE BUDWORM

Areas within which defoliation occurred in 1953

LEGEND

Moderate-to-severe defoliation ▨

HEARST AND KAPUSKASING DISTRICTS


KAPUSKASING
Hearst
Hornepayne
0
KM
60
SCALE

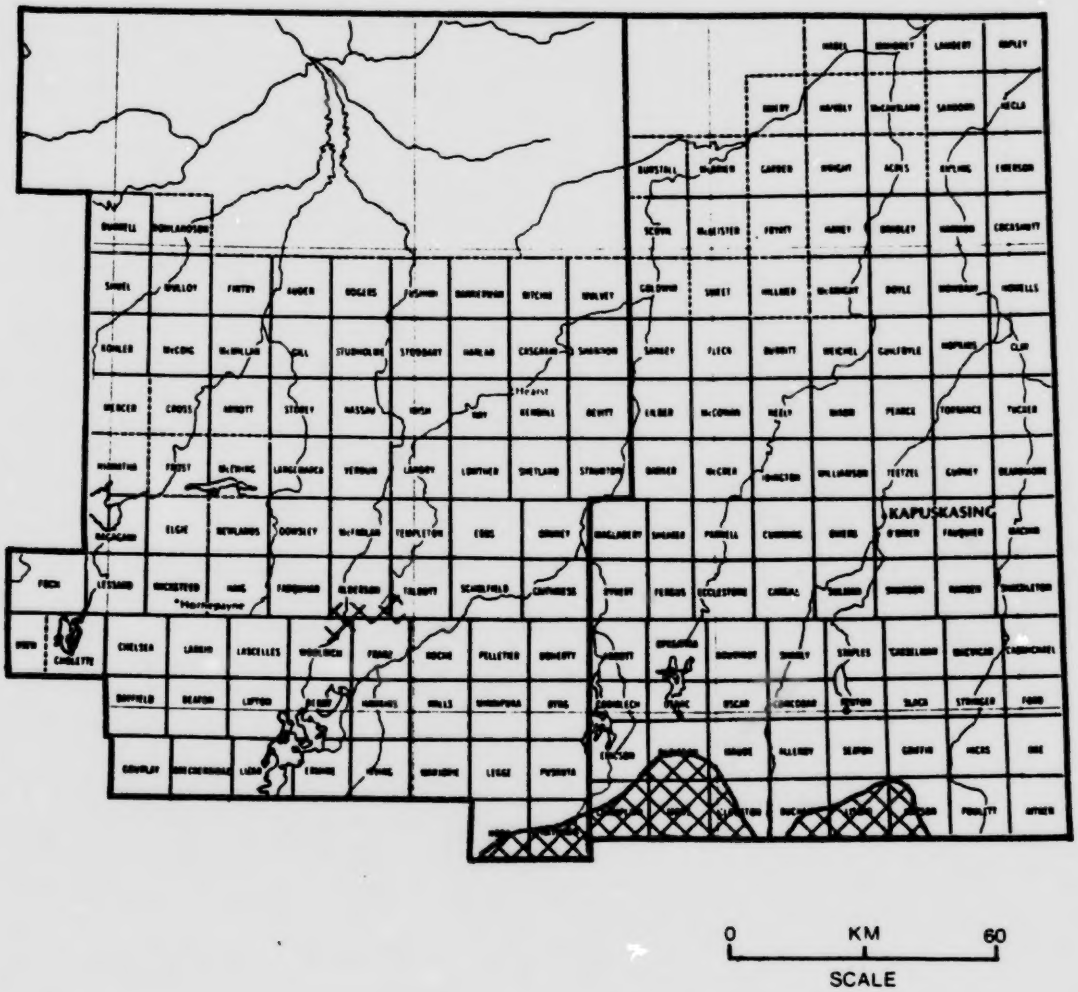
SPRUCE BUDWORM

Areas within which defoliation
occurred in 1954

LEGEND

Moderate-to-severe defoliation ▨

HEARST AND KAPUSKASING DISTRICTS


KAPUSKASING
Hearst
0
KM
60
SCALE

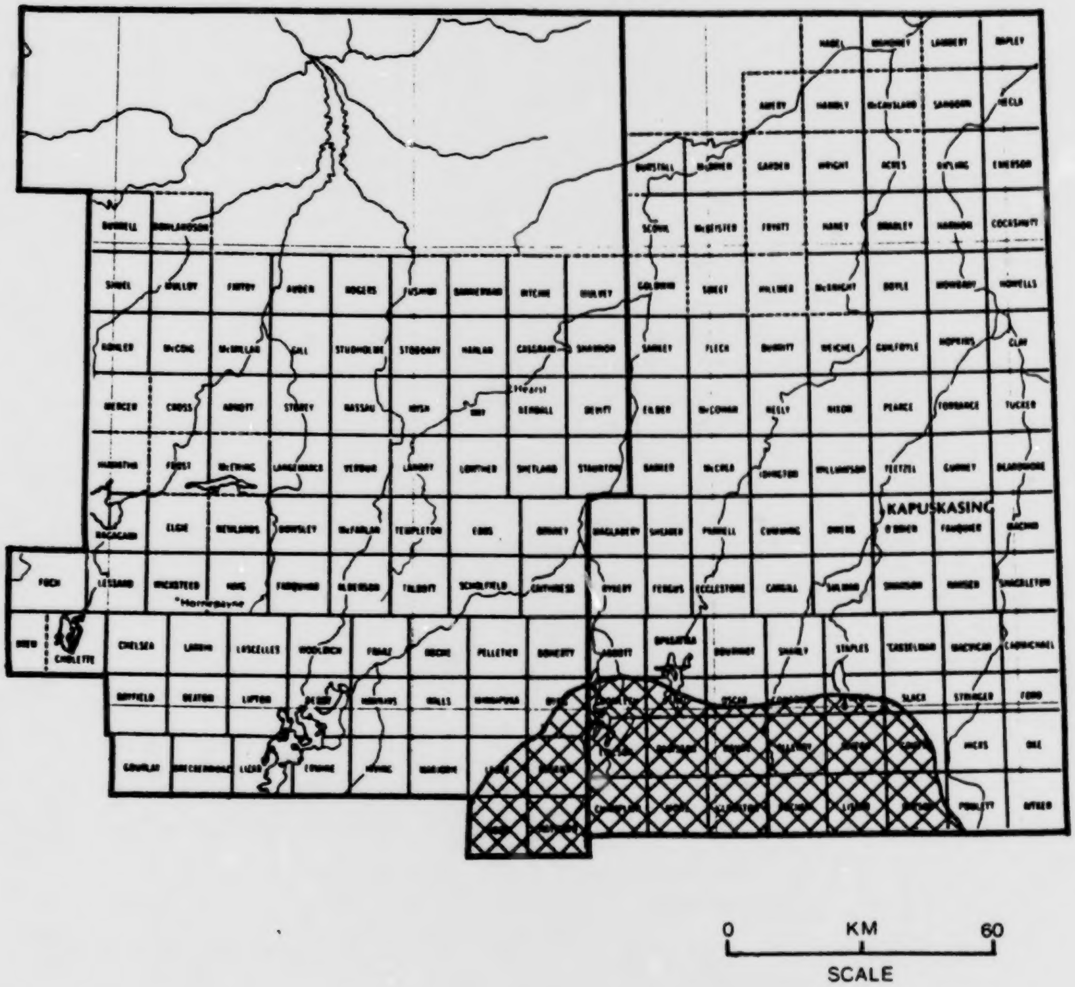
SPRUCE BUDWORM

Areas within which defoliation
occurred in 1970

LEGEND

Moderate-to-severe defoliation ▩

HEARST AND KAPUSKASING DISTRICTS


Hearst
KAPUSKASING
0
KM
60
SCALE

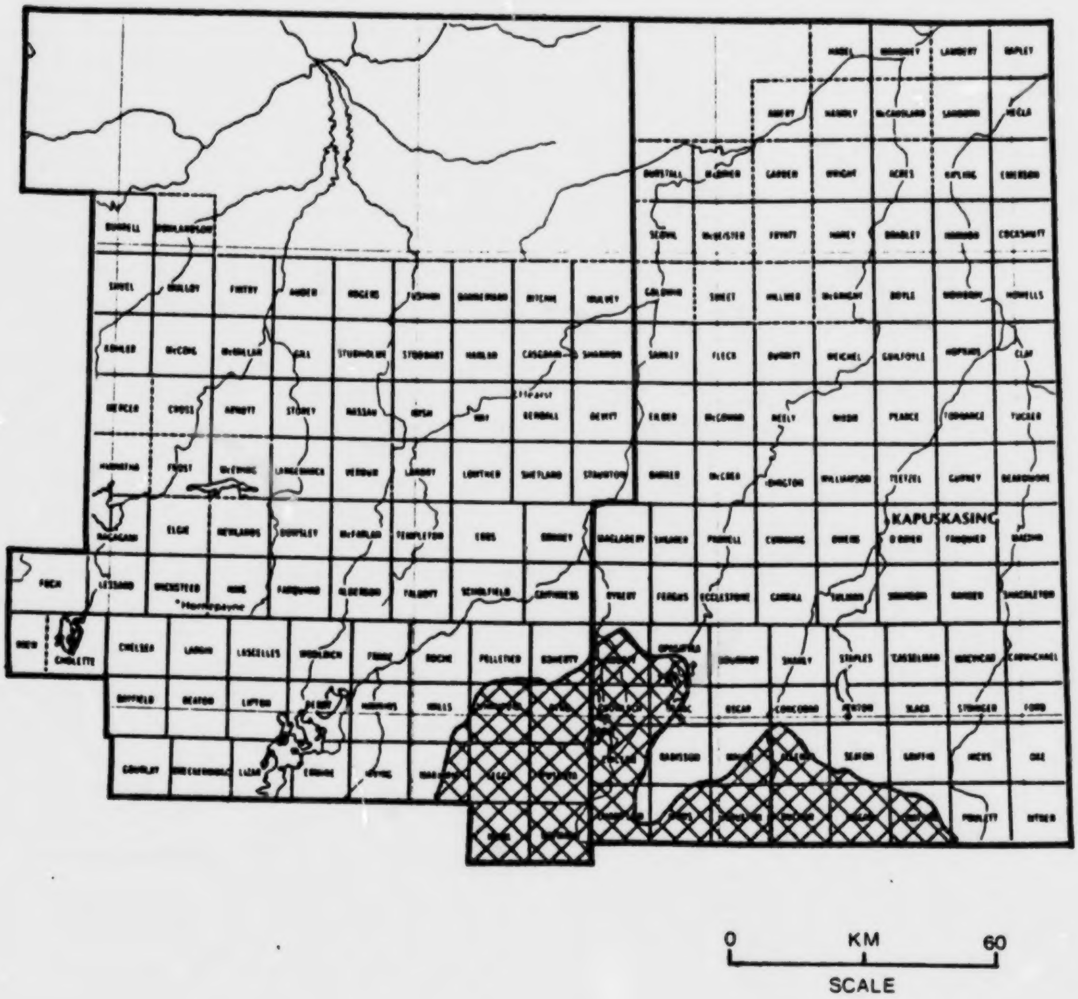
SPRUCE BUDWORM

Areas within which defoliation occurred in 1971

LEGEND

Moderate-to-severe defoliation ▩

HEARST AND KAPUSKASING DISTRICTS


KAPUSKASING
Hearst
Hornepayne
0
KM
60
SCALE

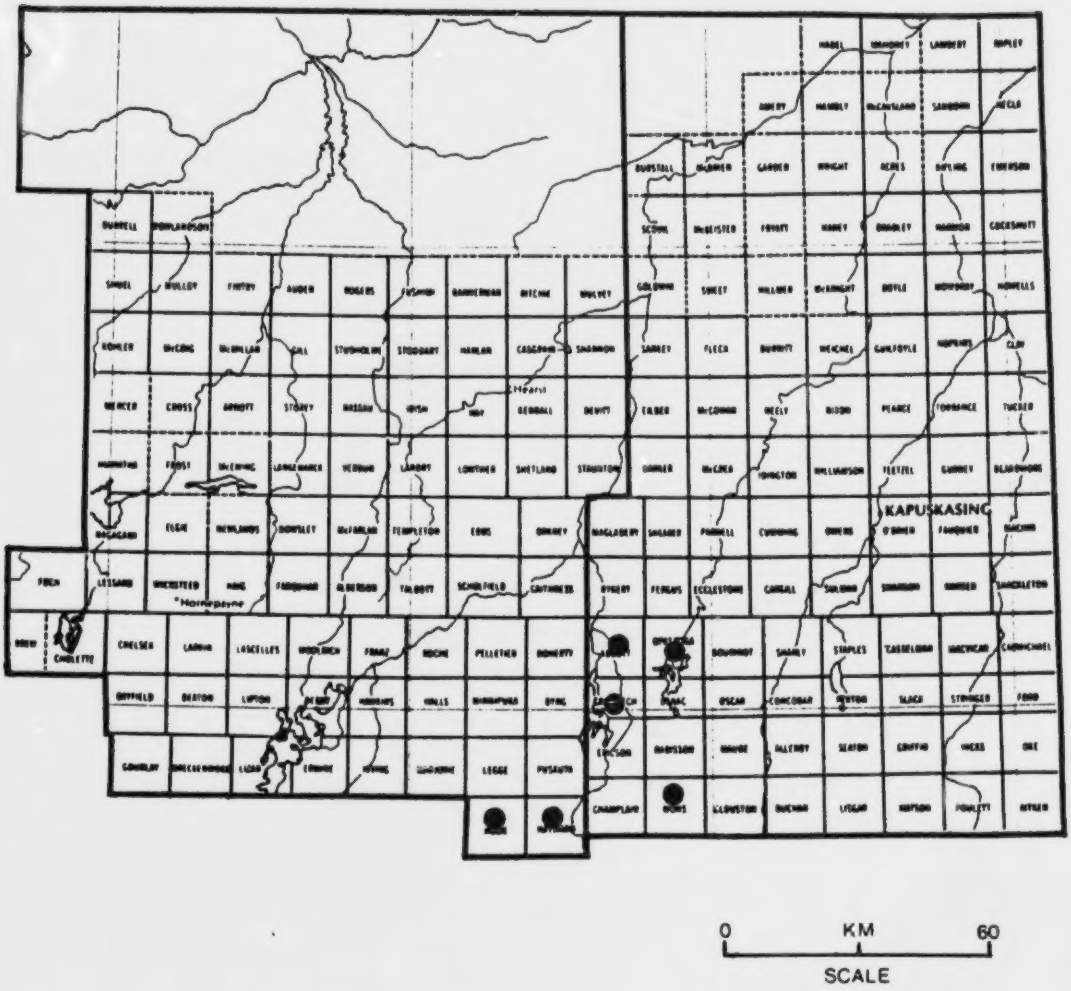
SPRUCE BUDWORM

Areas within which defoliation occurred in 1972

LEGEND

Moderate-to-severe defoliation ▨

HEARST AND KAPUSKASING DISTRICTS


KAPUSKASING
Hearst
Hornepayne
0
KM
60
SCALE

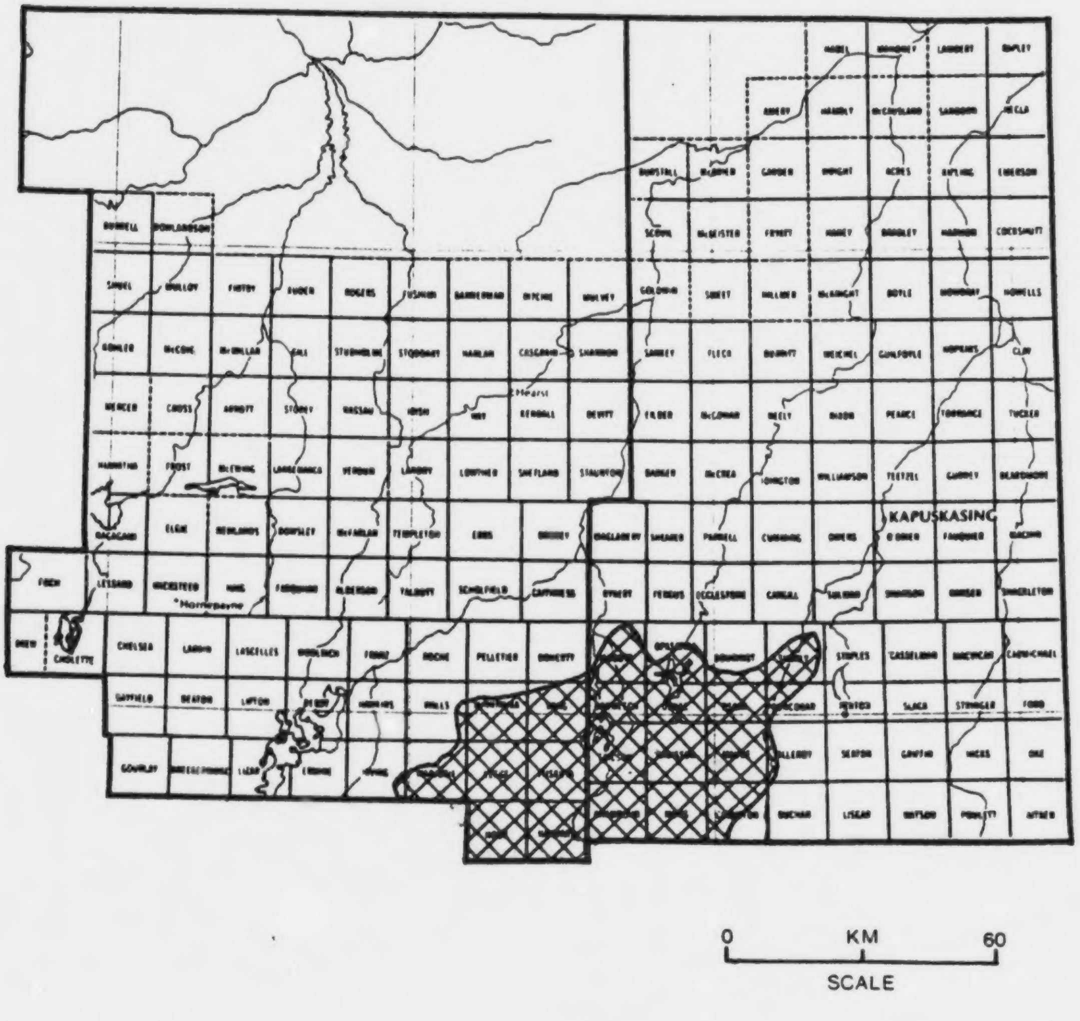
SPRUCE BUDWORM

Areas within which defoliation
occurred in 1973

LEGEND

Moderate-to-severe defoliation ▨

HEARST AND KAPUSKASING DISTRICTS


KAPUSKASING
Hearst
Hornepayne
0
KM
60
SCALE

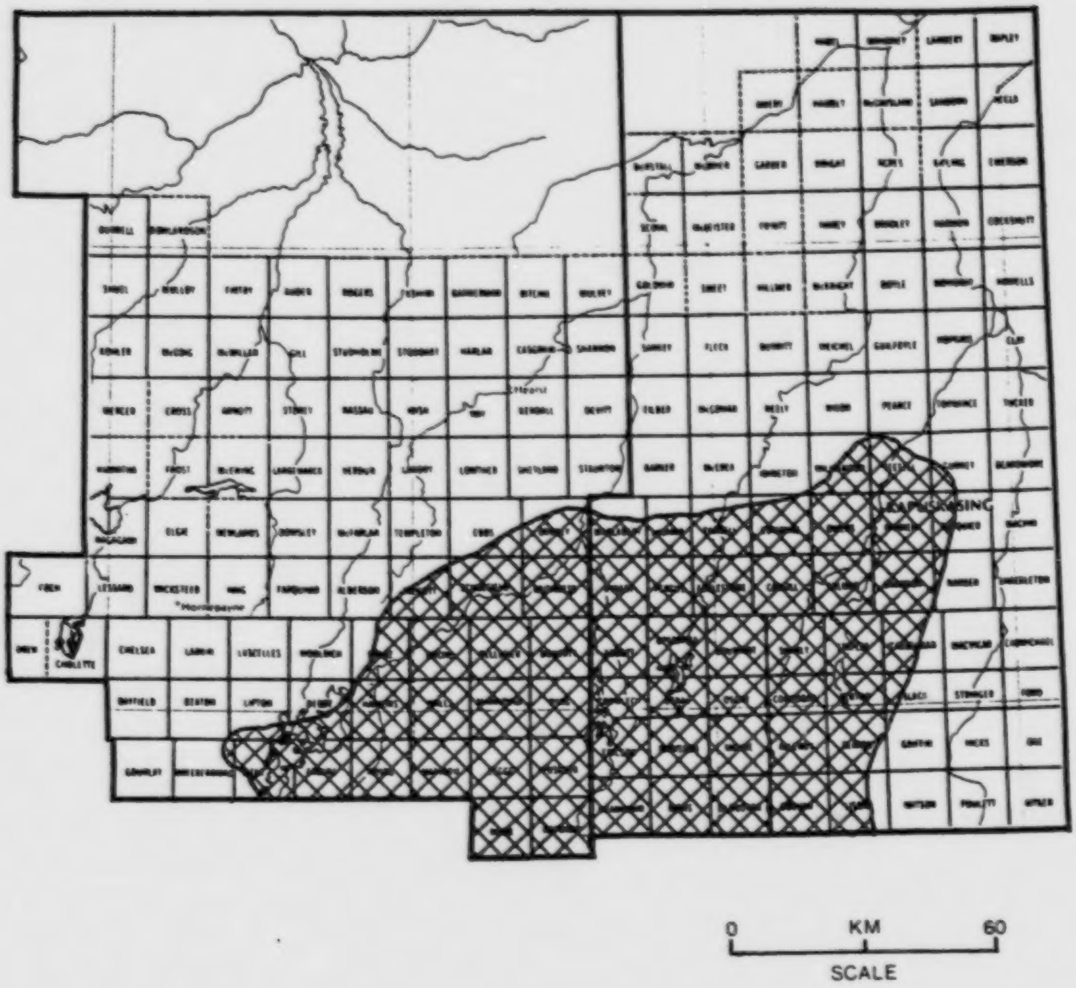
SPRUCE BUDWORM

Areas within which defoliation occurred in 1974

LEGEND

Moderate-to-severe defoliation ▨

HEARST AND KAPUSKASING DISTRICTS


KAPUSKASING
0
KM
60
SCALE

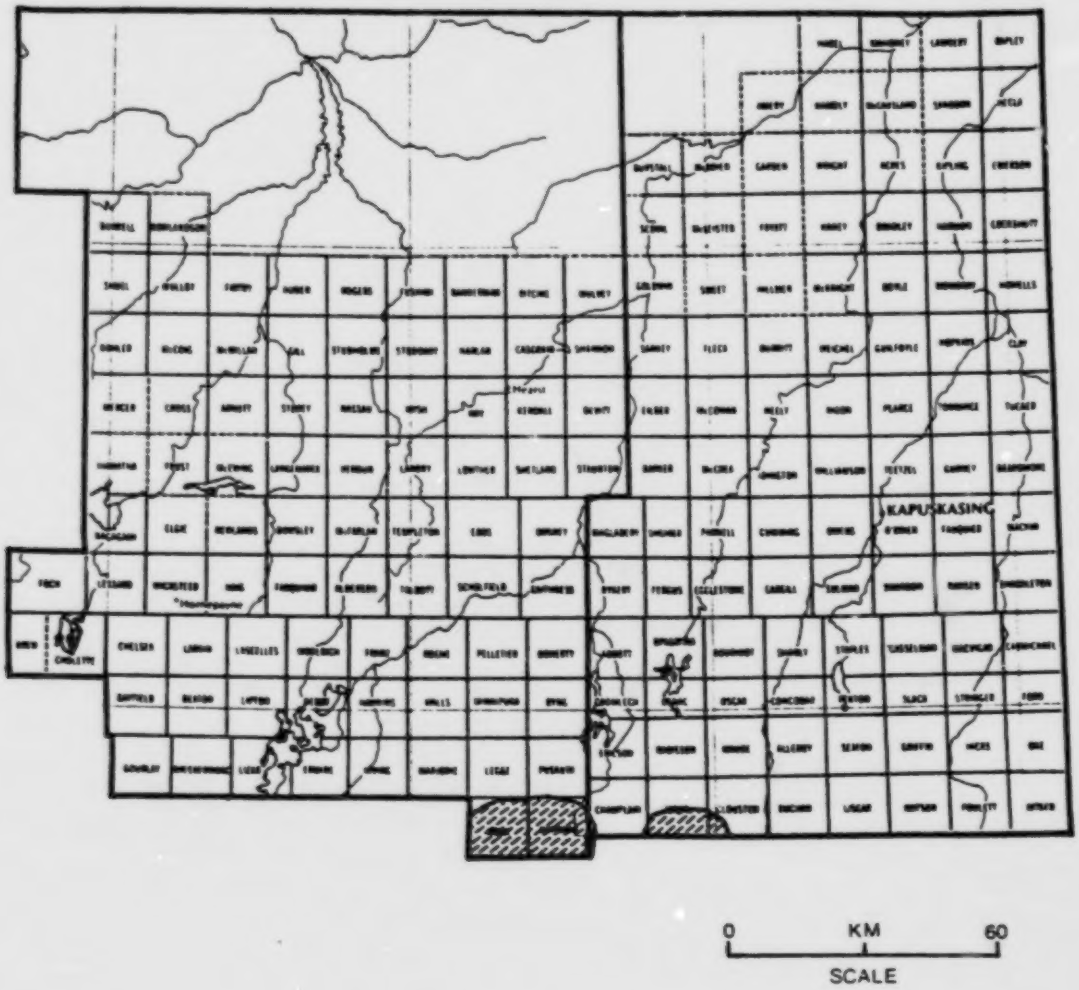
SPRUCE BUDWORM

Areas within which defoliation occurred in 1975

LEGEND

Moderate-to-severe defoliation ▨

HEARST AND KAPUSKASING DISTRICTS


KAPUSKASING
Hearst
0
KM
60
SCALE

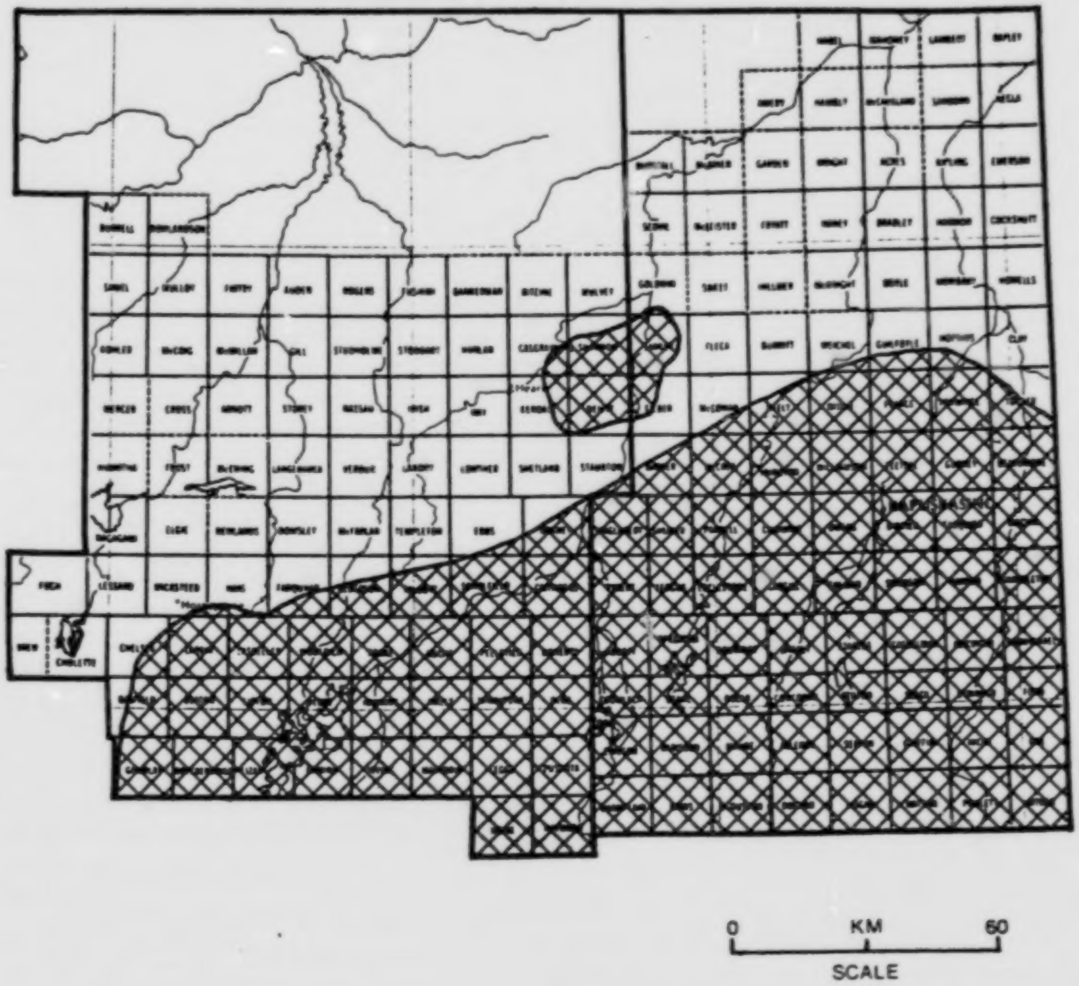
SPRUCE BUDWORM

Areas within which balsam fir whole tree and top mortality occurred in 1975

LEGEND

Mortality ▨

HEARST AND KAPUSKASING DISTRICTS



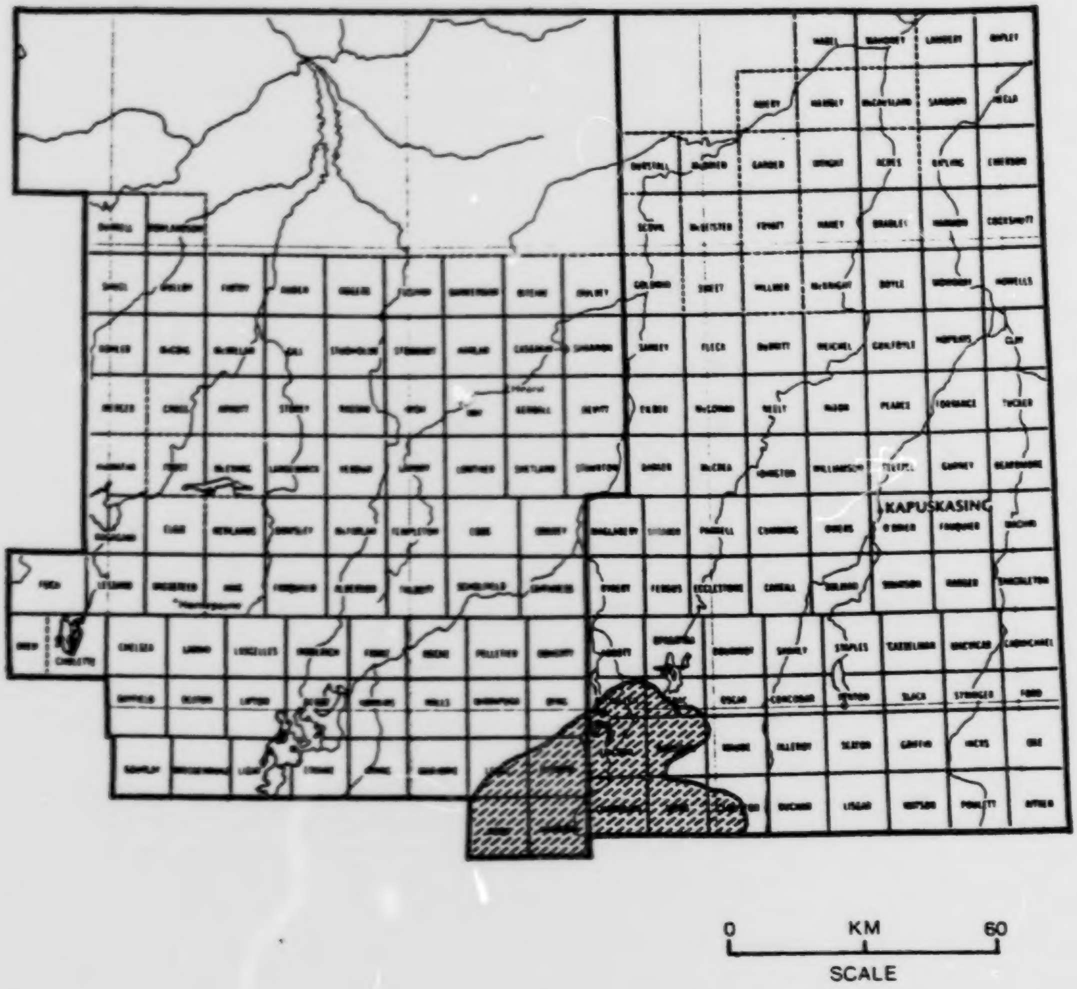
SPRUCE BUDWORM

Areas within which defoliation
occurred in 1976

LEGEND

Moderate-to-severe defoliation ▨

HEARST AND KAPUSKASING DISTRICTS


KAPUSKASING
0
KM
60
SCALE

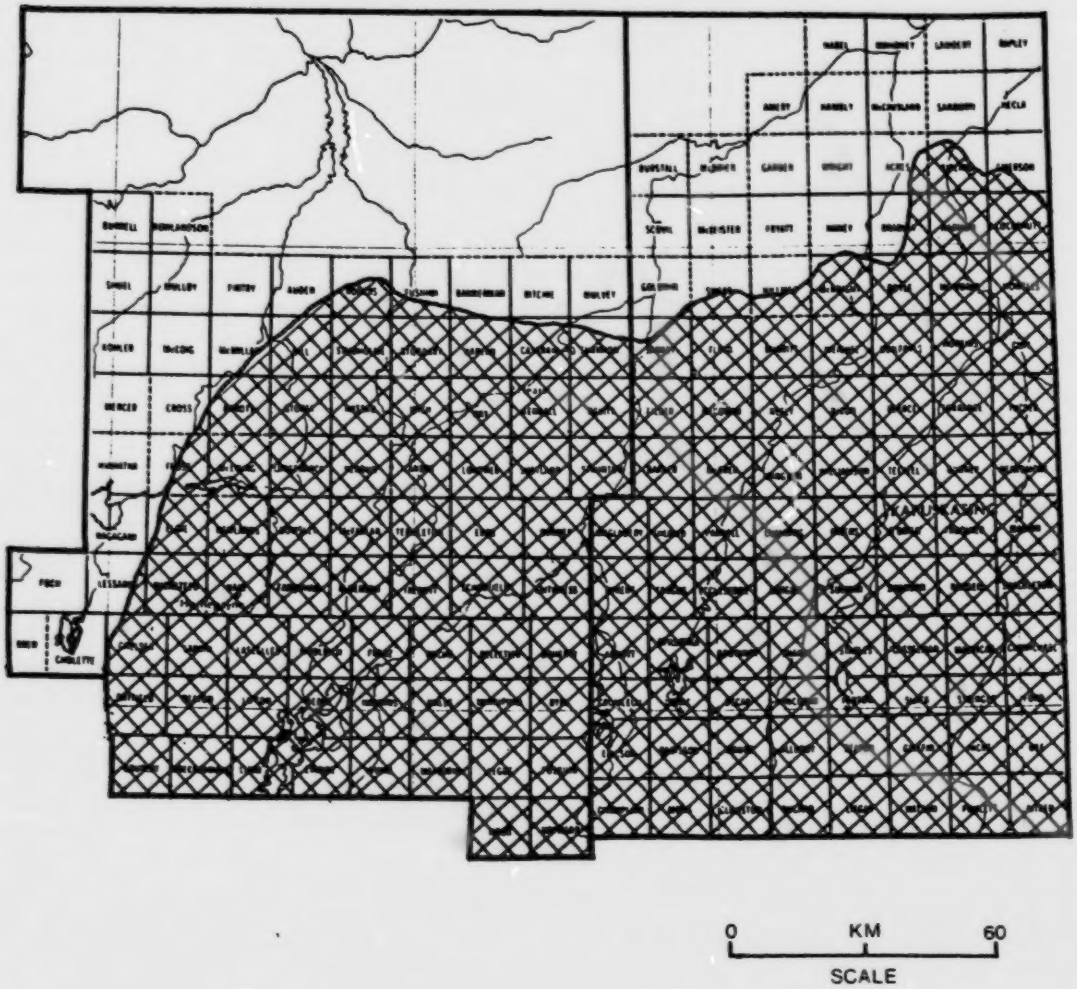
SPRUCE BUDWORM

Areas within which balsam fir whole tree and top mortality occurred in 1976

LEGEND

Mortality ▨

HEARST AND KAPUSKASING DISTRICTS


KAPUSKASING
0
KM
60
SCALE

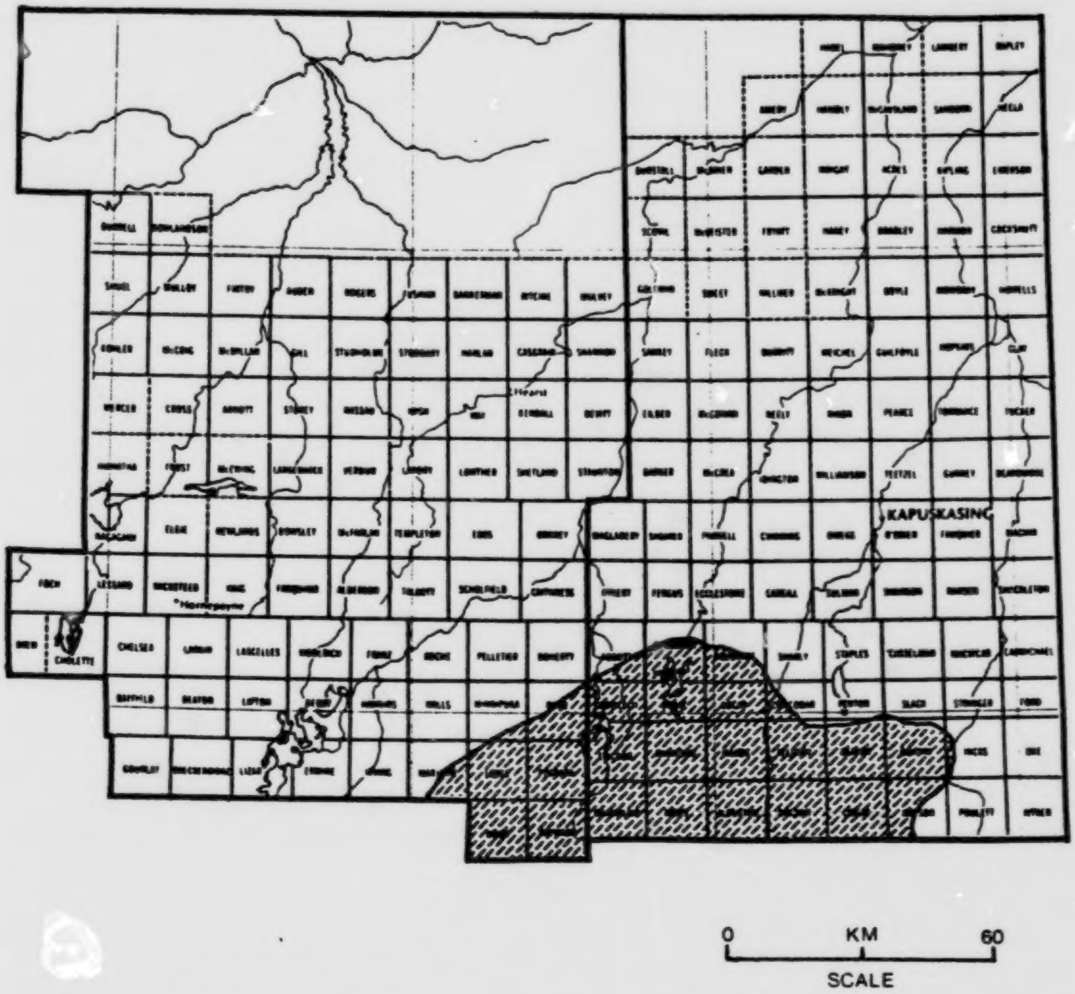
SPRUCE BUDWORM

Areas within which defoliation occurred in 1977

LEGEND

Moderate-to-severe defoliation ▨

HEARST AND KAPUSKASING DISTRICTS


KAPUSKASING
Hearst
Hornepayne
0
KM
60
SCALE

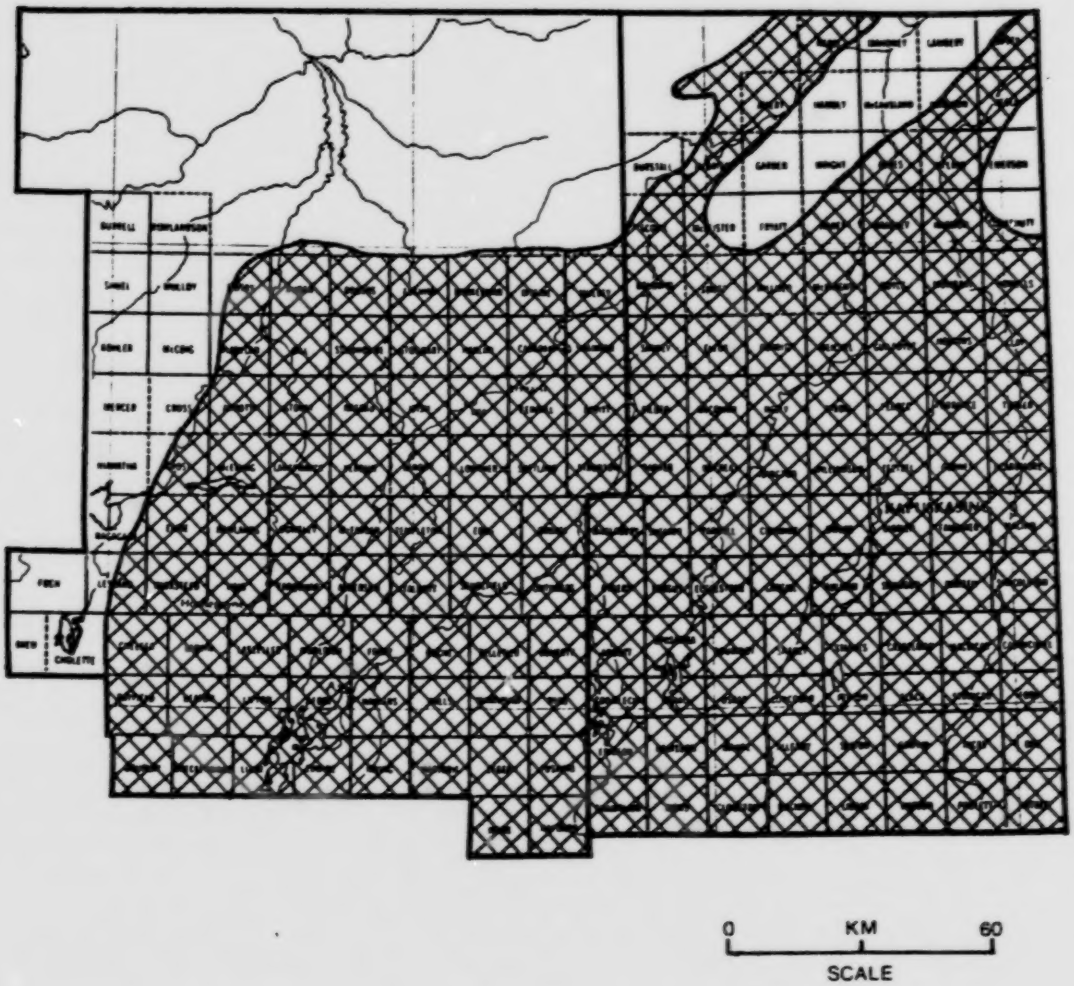
SPRUCE BUDWORM

Areas within which balsam fir whole tree and top mortality occurred in 1977

LEGEND

Mortality ▨

HEARST AND KAPUSKASING DISTRICTS


KAPUSKASING
0
KM
60
SCALE

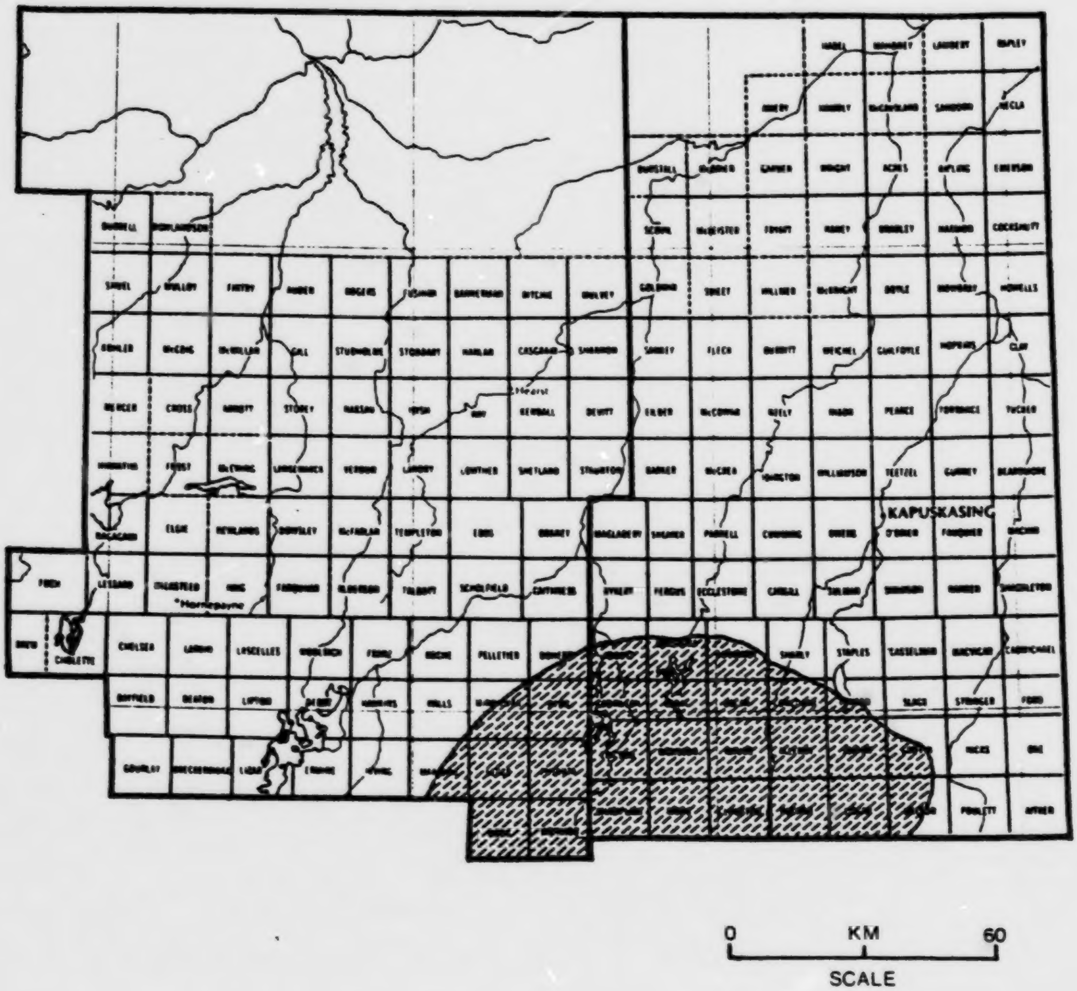
SPRUCE BUDWORM

Areas within which defoliation occurred in 1978

LEGEND

Moderate-to-severe defoliation ▨

HEARST AND KAPUSKASING DISTRICTS


KAPUSKASING
Hearst
Hornepayne
0
KM
60
SCALE

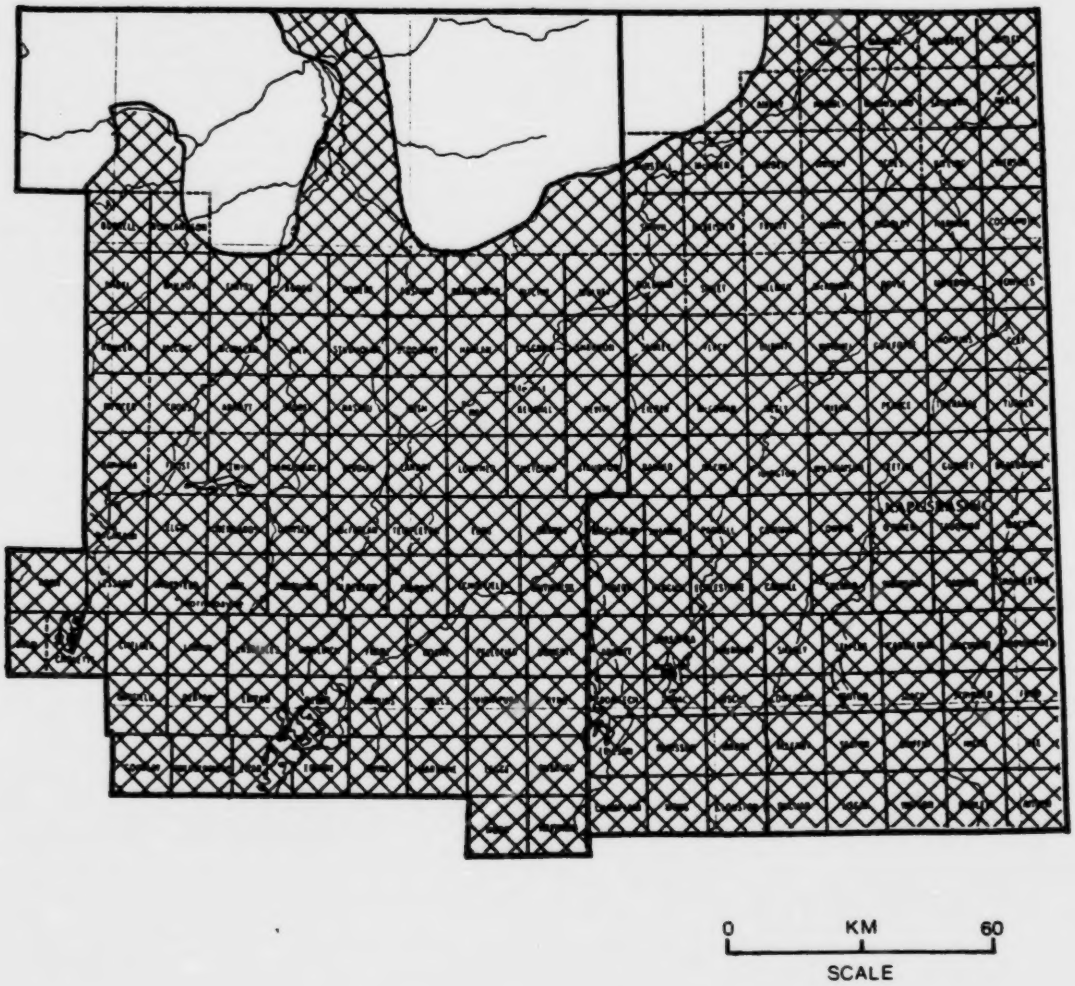
SPRUCE BUDWORM

Areas within which balsam fir whole tree and top mortality occurred in 1978

LEGEND

Mortality ▨

HEARST AND KAPUSKASING DISTRICTS


KAPUSKASING
0
KM
60
SCALE

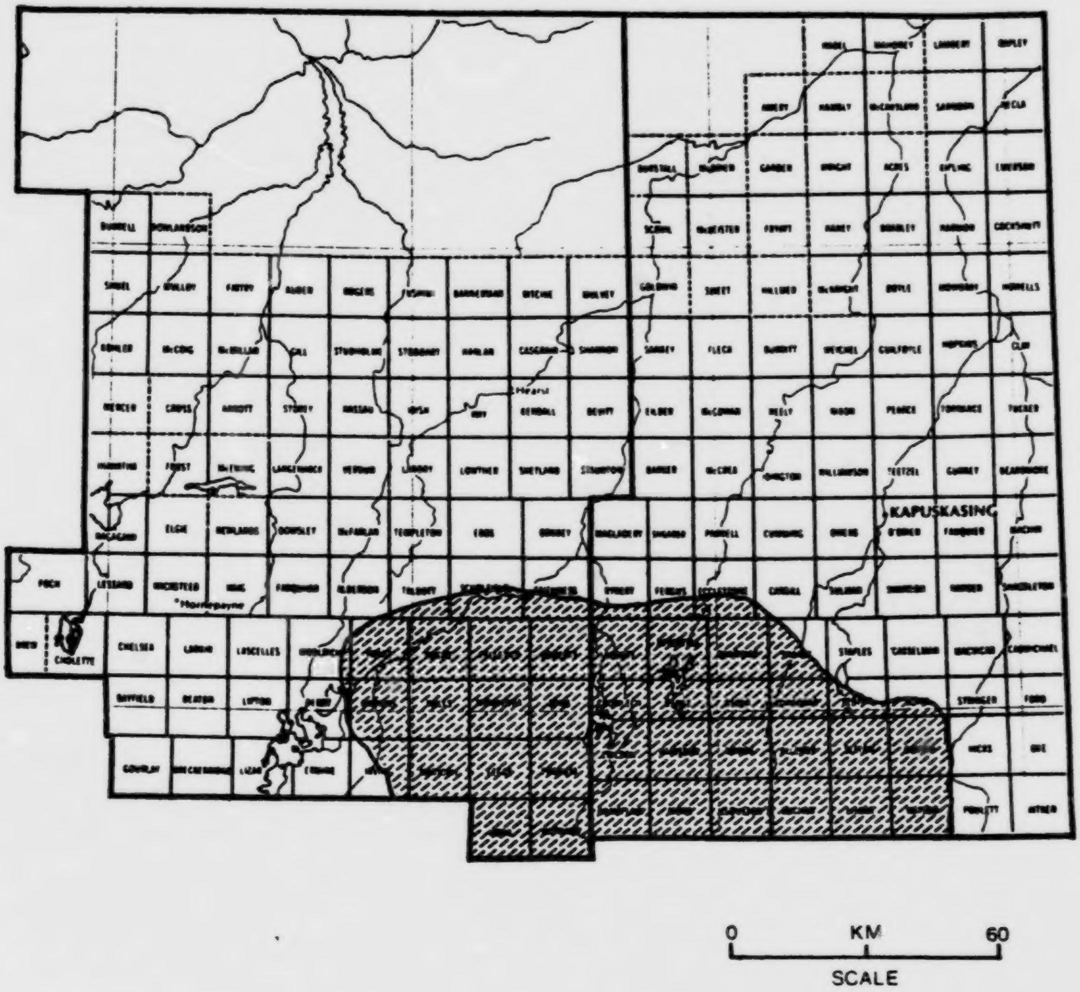
SPRUCE BUDWORM

Areas within which defoliation occurred in 1979

LEGEND

Moderate-to-severe defoliation ▨

HEARST AND KAPUSKASING DISTRICTS


KAPUSKASING
Hearst
0
KM
60
SCALE

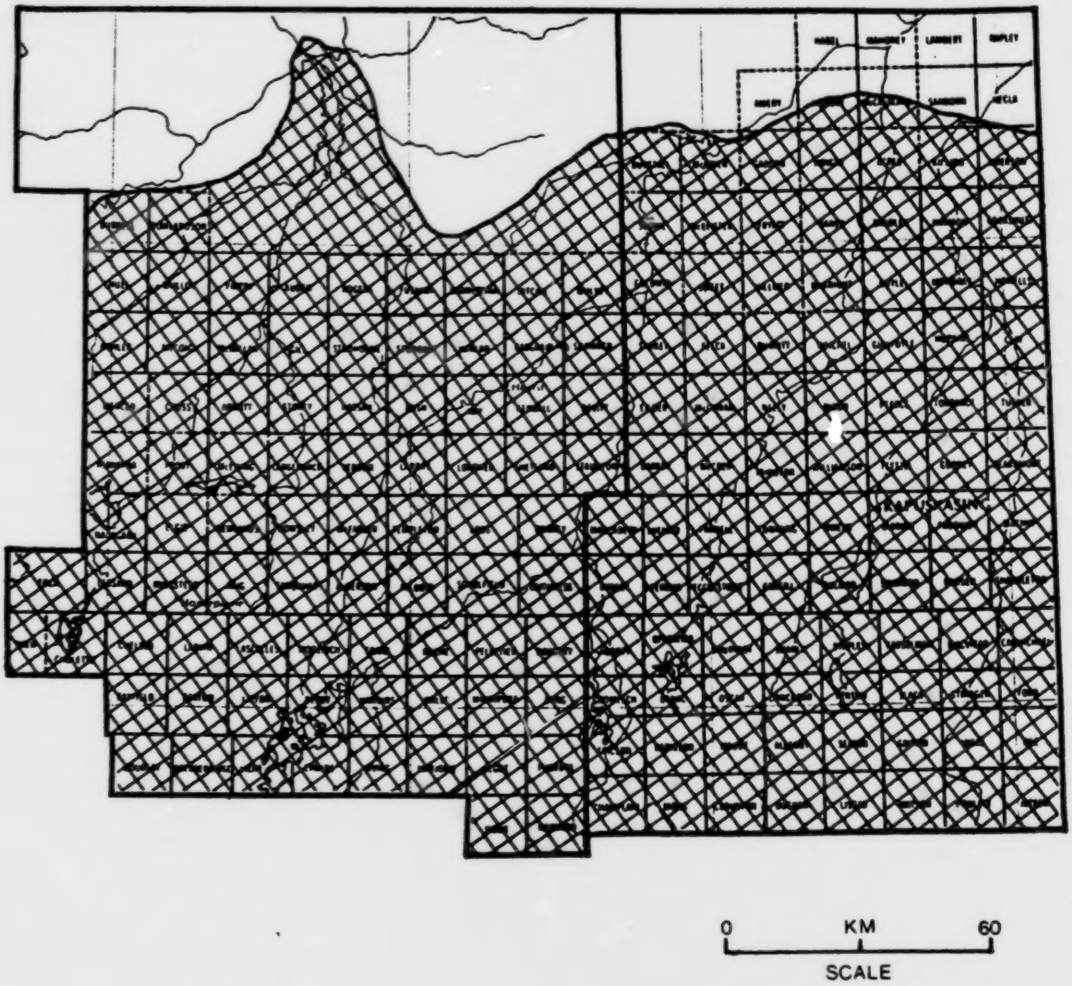
SPRUCE BUDWORM

Areas within which balsam fir
whole tree and top mortality
occurred in 1979

LEGEND

Mortality ▨

HEARST AND KAPUSKASING DISTRICTS


KAPUSKASING
0
KM
60
SCALE

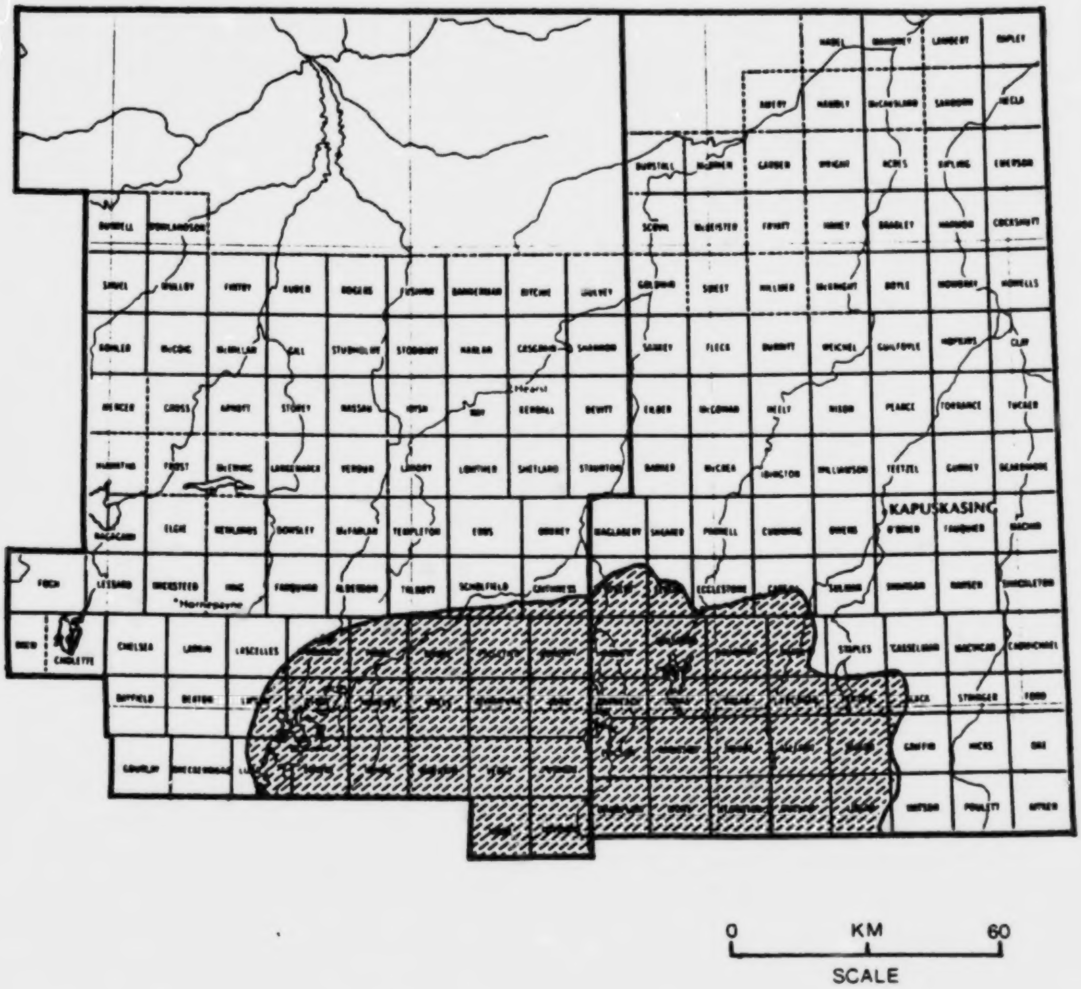
SPRUCE BUDWORM

Areas within which defoliation occurred in 1980

LEGEND

Moderate-to-severe defoliation ▨

HEARST AND KAPUSKASING DISTRICTS


KAPUSKASING
Hearst
Hornepayne
0
KM
60
SCALE

SPRUCE BUDWORM

Areas within which balsam fir whole tree and top mortality occurred in 1980

LEGEND

Mortality ▨

Larch Casebearer, *Coleophora laricella* (Hbn.)

Host(s): larch [Major]

Year	Remarks
1950-1961	not reported
1962	very low populations in Fauquier Twp; first distribution record in the District
1963-1968	low populations in O'Brien and Fauquier twps
1969	not reported
1970	low populations in Fauquier Twp
1971-1975	moderate populations in Fauquier Twp
1976	decline to low populations in Fauquier Twp
1977-1980	light populations in Fauquier Twp

Aspen Defoliators, *Enargia decolor* (Wlk.), *Epinotia solandriana* L., *Gonioctena americana* (Schaef.) *and Pseudexentera oregonana* Wlshm.

Host(s): aspen [Major]

Year		Remarks
1950-1953		not reported
1954	*G. americana*	common on regeneration
1955	*G. americana*	moderate-to-severe defoliation in Nansen Twp
1956-1958	*G. americana*	low populations
1959	*G. americana*	light defoliation in Fauquier, Machin and Nansen twps
	E. solandriana	light defoliation in Fauquier, O'Brien and Dowsley twps
1960	*G. americana*	light defoliation in Machin, Fauquier and Shackleton twps
	E. decolor	light in Gurney, Casselman and Parnell twps
	E. solandriana	light in Fauquier Twp
1961	*E. decolor*	light infestations in Casselman and Shearer twps
	E. solandriana	low populations
1962	*E. decolor*	light infestations in Casselman, Shearer, O'Brien, Fauquier and Machin twps
	E. solandriana	low populations
1963	*E. decolor*	decline to light
	E. solandriana	low populations
1964	*E. solandriana*	low populations
1965	*P. oregonana*	moderate-to-severe defoliation in the southeastern part of the District (see map, page 47).

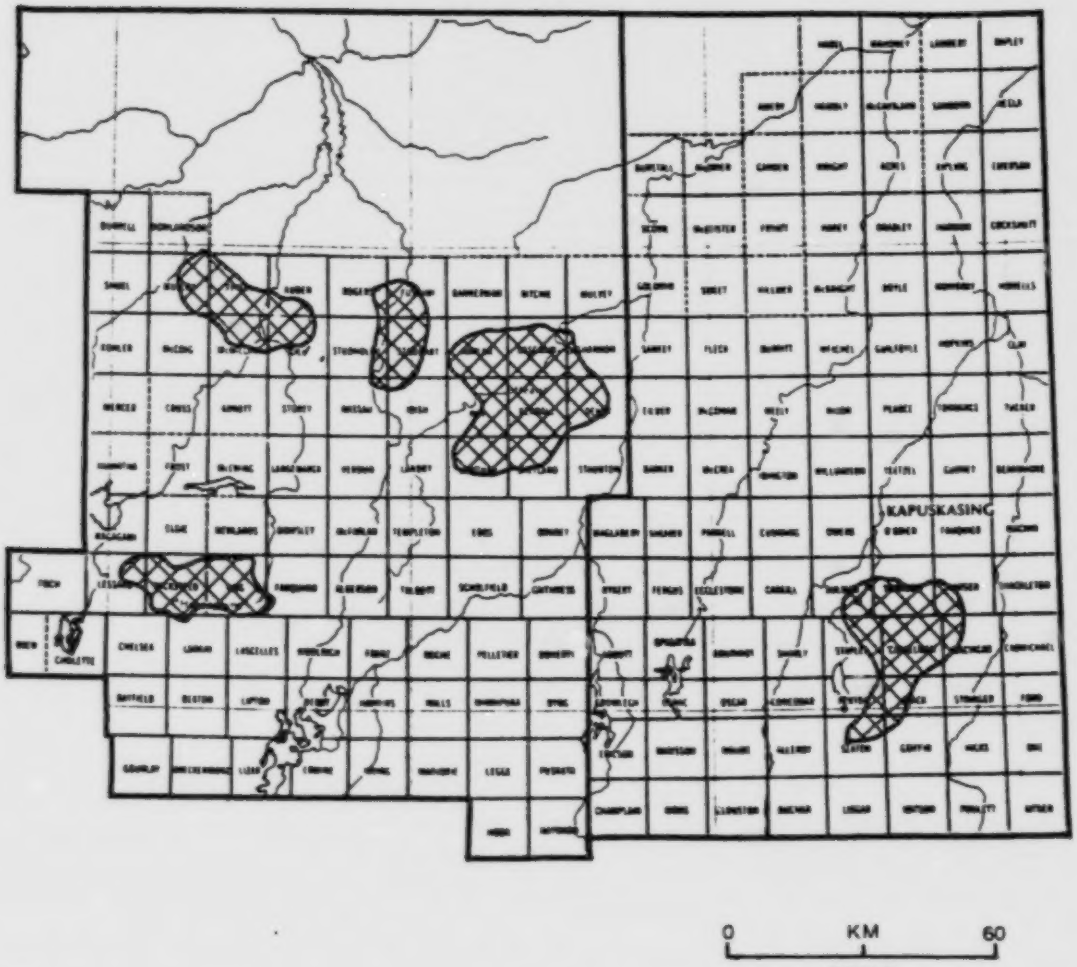
(cont'd)

Aspen Defoliators, *Enargia decolor* (Wlk.), *Epinotia solandriana* Linn., *Gonioctena americana* (Schaef.) and *Pseudexentera oregonana* Wlshm. (concl.)

Host(s): aspen [Major]

Year		Remarks
1966	*G. americana*	low populations
	P. oregonana	decline in populations
1967	*E. decolor*	low populations
	P. oregonana	low populations in Eilber Twp
1968	*E. solandriana*	low populations in Shearer Twp
	P. oregonana	low populations in Parnell Twp
1969-1972		not reported
1973	*G. americana*	low populations
1974	*G. americana*	light defoliation in Buchan Twp
1975	*P. oregonana*	severe defoliation along Gurney Road
1976	*P. oregonana*	severe defoliation along Gurney Road
1977	*G. americana*	severe defoliation in Fauquier Twp.
	P. oregonana	severe defoliation in Fauquier and Gurney twps
1978		not reported
1979	*G. americana*	severe defoliation at numerous locations
1980		not reported

HEARST AND KAPUSKASING DISTRICTS


KAPUSKASING
0
KM
60
SCALE

ASPEN LEAFROLLER
(P. oregonana)

Areas within which defoliation
occurred in 1965

LEGEND

Moderate-to-severe defoliation ▨

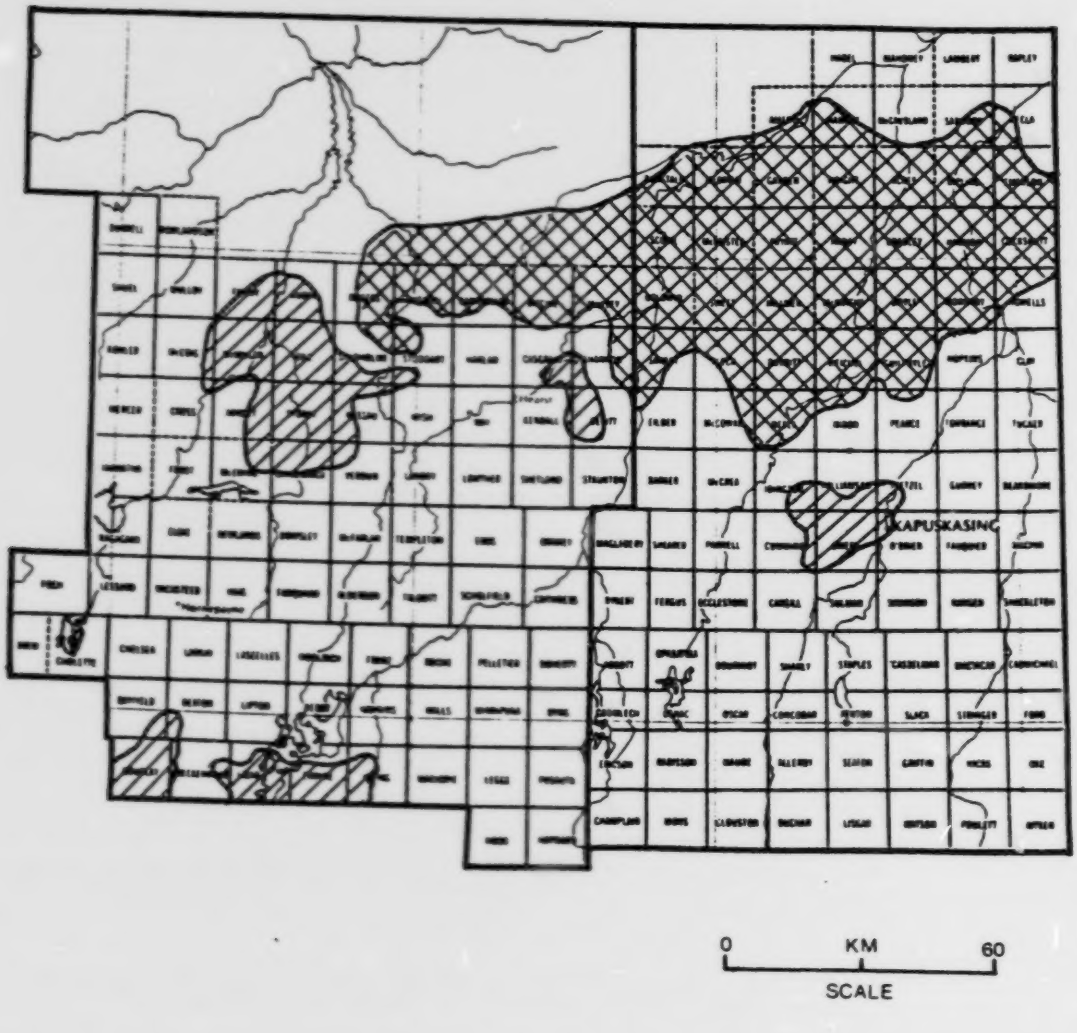
Forest Tent Caterpillar, *Malacosoma disstria* Hbn.

Host(s): aspen, deciduous

[Major]

Year	Remarks
1950	Moderate-to-severe defoliation across the northern part of the District with pockets of light defoliation in the south (see map, page 49).
1951	moderate-to-severe defoliation in the northern part of the District, with smaller pockets in the central part (see map, page 50).
1952	Moderate-to-severe defoliation in the western part of the District, with three smaller pockets along the eastern boundary (see map, page 51).
1953	An increase in infestation occurred, with moderate-to-severe defoliation in most of the District (see map, page 52).
1954	a dramatic decline in infestation; moderate-to-severe defoliation in several twps in the southeastern portion, and in Ericson, Radisson, Maude and Allenby twps in the southwestern portion (see map, page 53)
1955	a further decline in infestation; only a few larvae observed (see map, page 54).
1956-1972	not reported
1973	light defoliation in Fauquier Twp
1974	three pockets of light defoliation in Fauquier, Kipling and Rapley twps (see map, page 55).
1975	a dramatic increase; moderate-to-severe defoliation in the northern part of the District (see map, page 56).
1976	a further increase in defoliation (see map, page 57).
1977	Moderate-to-severe defoliation over a large area (see map, page 58).
1978	a further spread southward (see map, page 59).
1979	a major decline in infestation; numerous pockets of moderate-to-severe defoliation (see map, page 60).
1980	There was a further decline. A pocket of infestation persisted in approximately 81 ha in Shackleton Twp.

HEARST AND KAPUSKASING DISTRICTS


KAPUSKASING
0
KM
60
SCALE

FOREST TENT CATERPILLAR

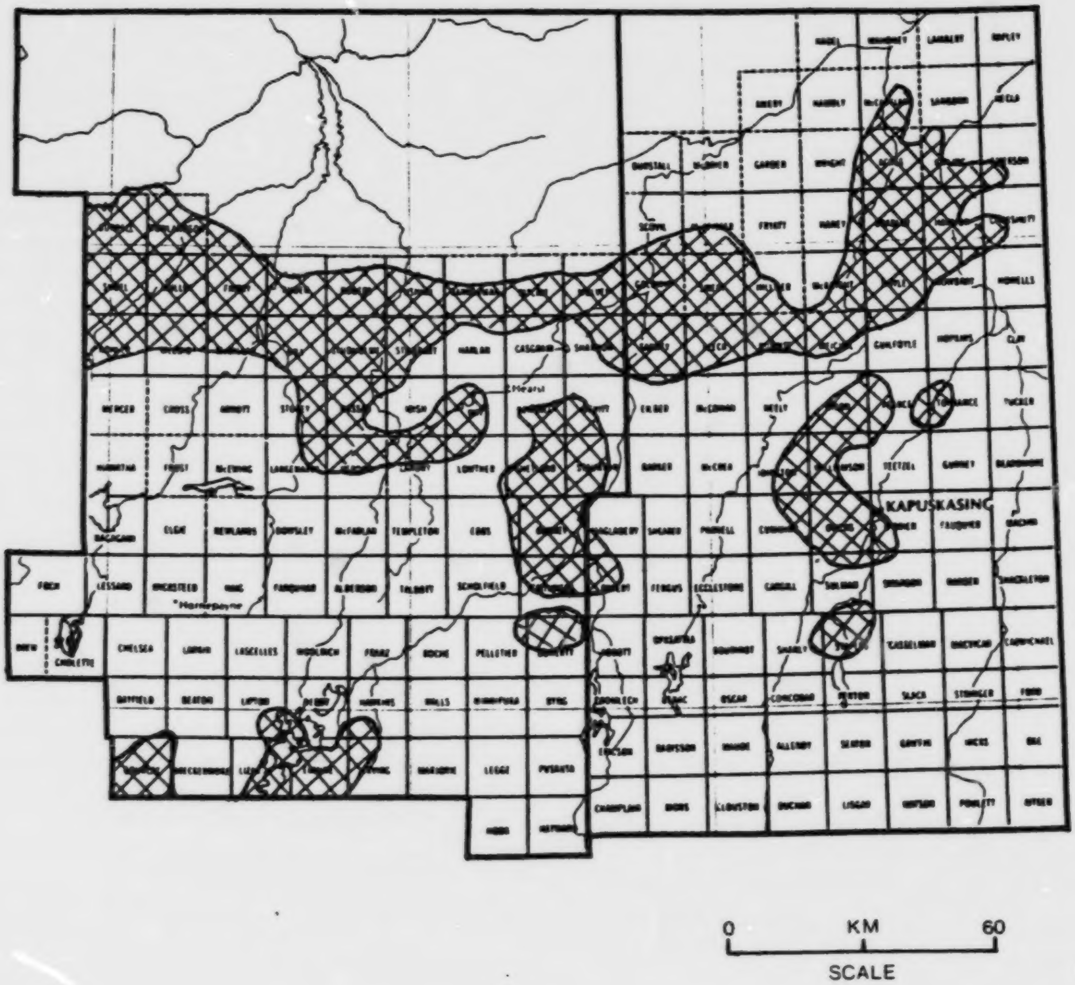
Areas within which defoliation occurred in 1950

LEGEND

Light defoliation

Moderate-to-severe defoliation ▩

HEARST AND KAPUSKASING DISTRICTS


KAPUSKASING
Hearst
Hornepayne
0
KM
60
SCALE

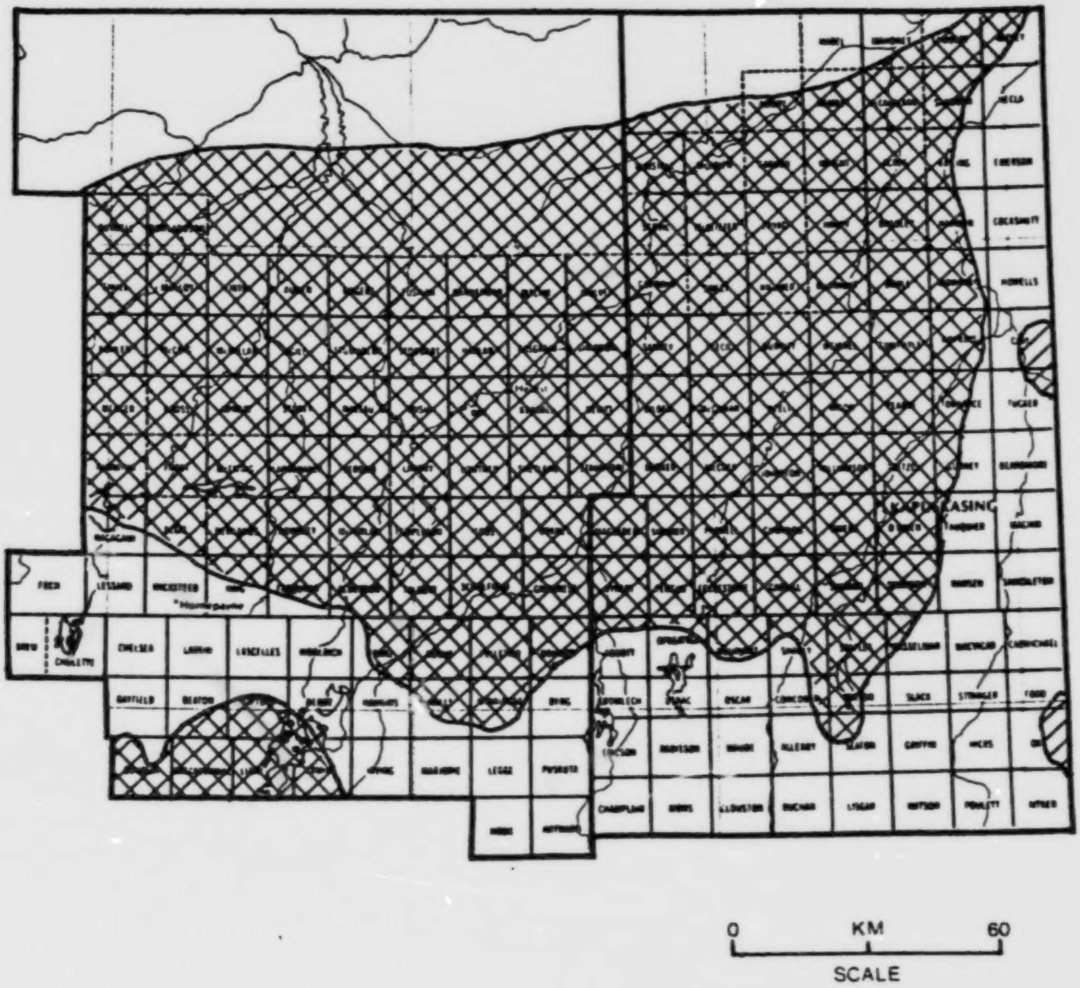
FOREST TENT CATERPILLAR

Areas within which defoliation occurred in 1951

LEGEND

Moderate-to-severe defoliation ▨

HEARST AND KAPUSKASING DISTRICTS


KAPUSKASING
0
KM
60
SCALE

FOREST TENT CATERPILLAR

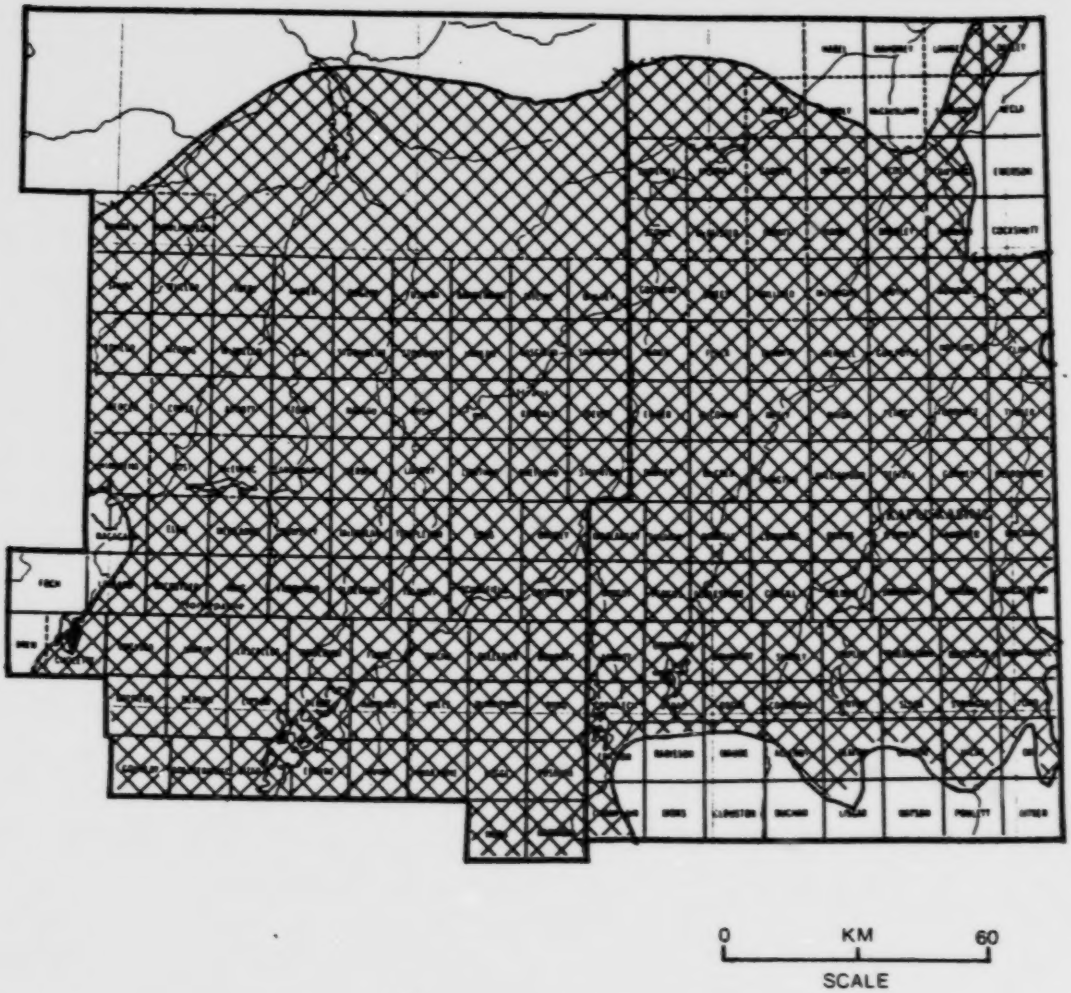
Areas within which defoliation occurred in 1952

LEGEND

Light defoliation ▨

Moderate-to-severe defoliation ▩

HEARST AND KAPUSKASING DISTRICTS


KAPUSKASING
0
KM
60
SCALE

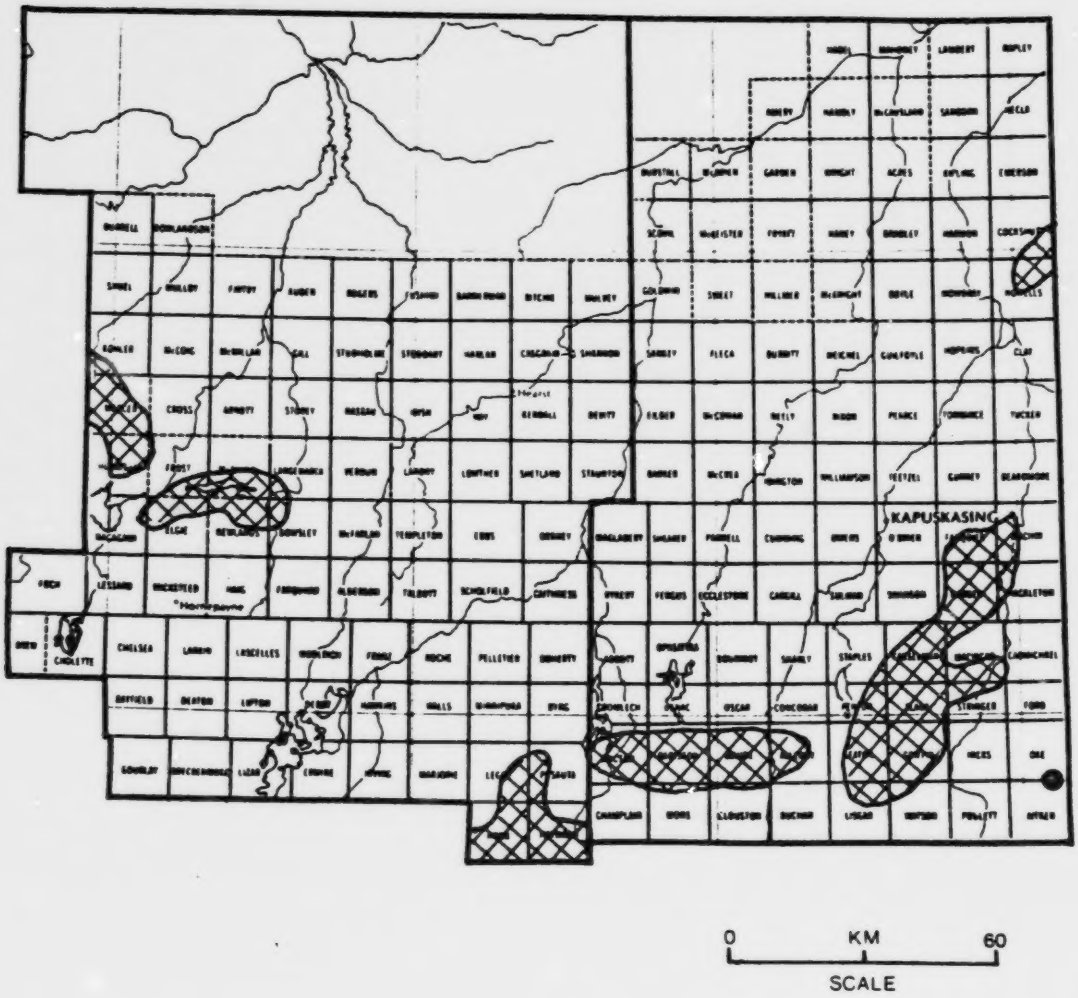
FOREST TENT CATERPILLAR

Areas within which defoliation occurred in 1953

LEGEND

Moderate-to-severe defoliation ▨

HEARST AND KAPUSKASING DISTRICTS


KAPUSKASING
Hearst
Hornepayne
0
KM
60
SCALE

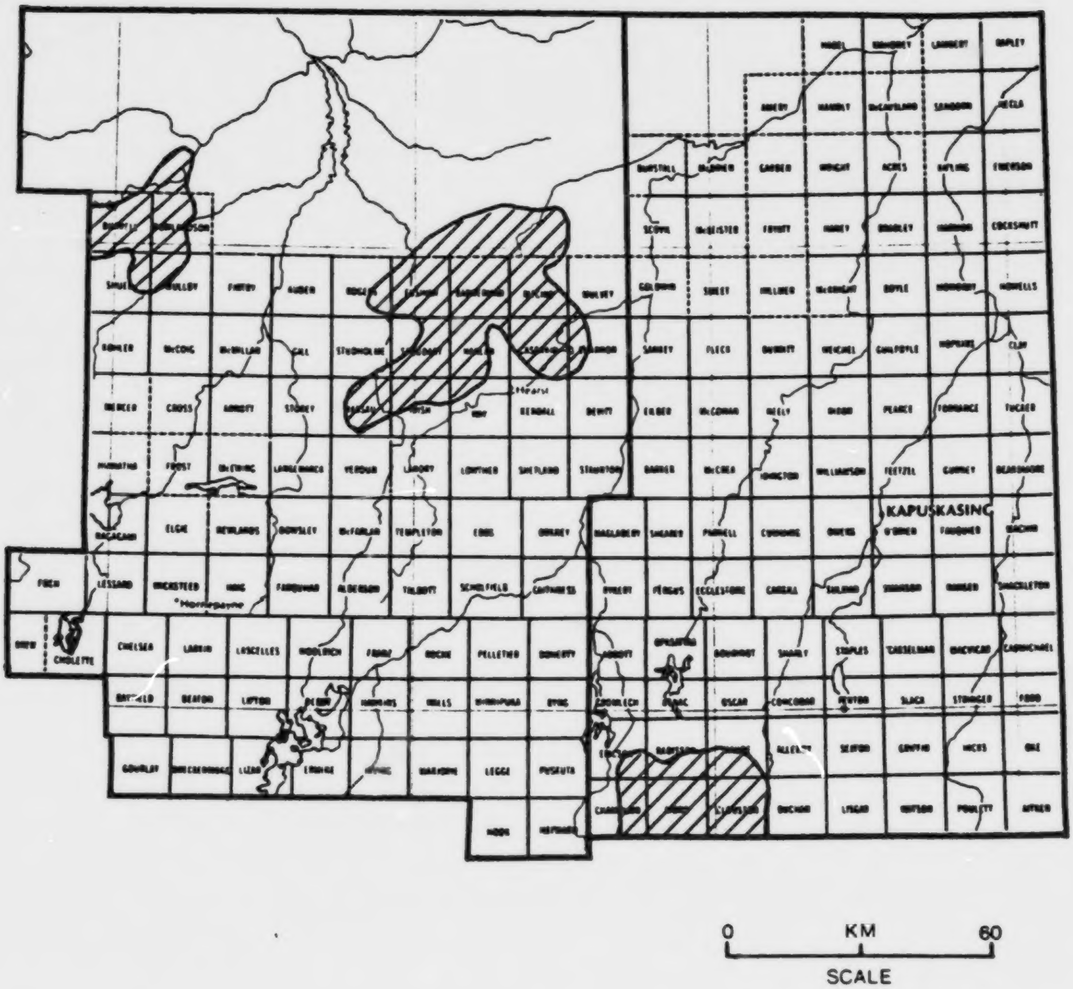
FOREST TENT CATERPILLAR

Areas within which defoliation occurred in 1954

LEGEND

Moderate-to-severe defoliation ● or ▨

HEARST AND KAPUSKASING DISTRICTS


Hearst
KAPUSKASING
0
KM
60
SCALE

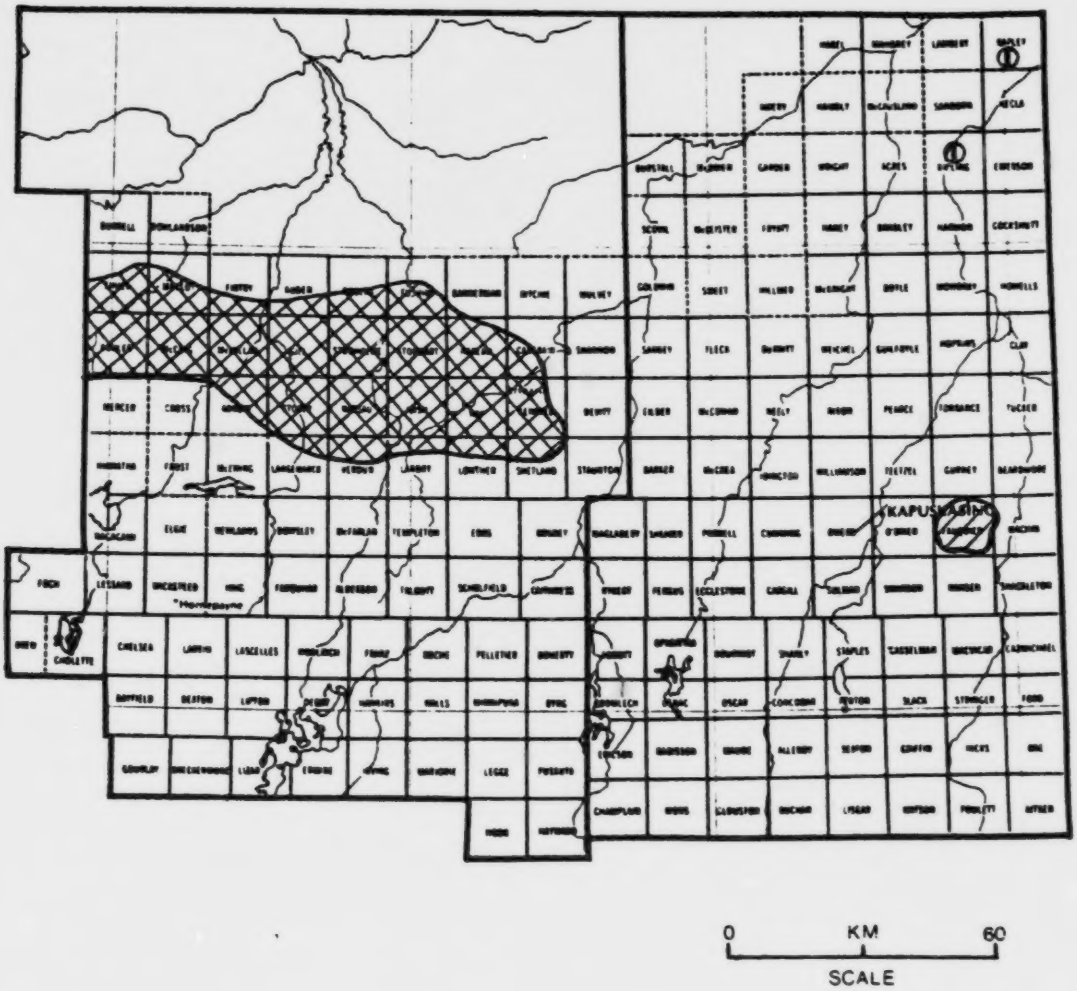
FOREST TENT CATERPILLAR

Areas within which defoliation
occurred in 1955

LEGEND

Light defoliation ▨

HEARST AND KAPUSKASING DISTRICTS


KAPUSKASING
Hornepayne
0
KM
60
SCALE

FOREST TENT CATERPILLAR

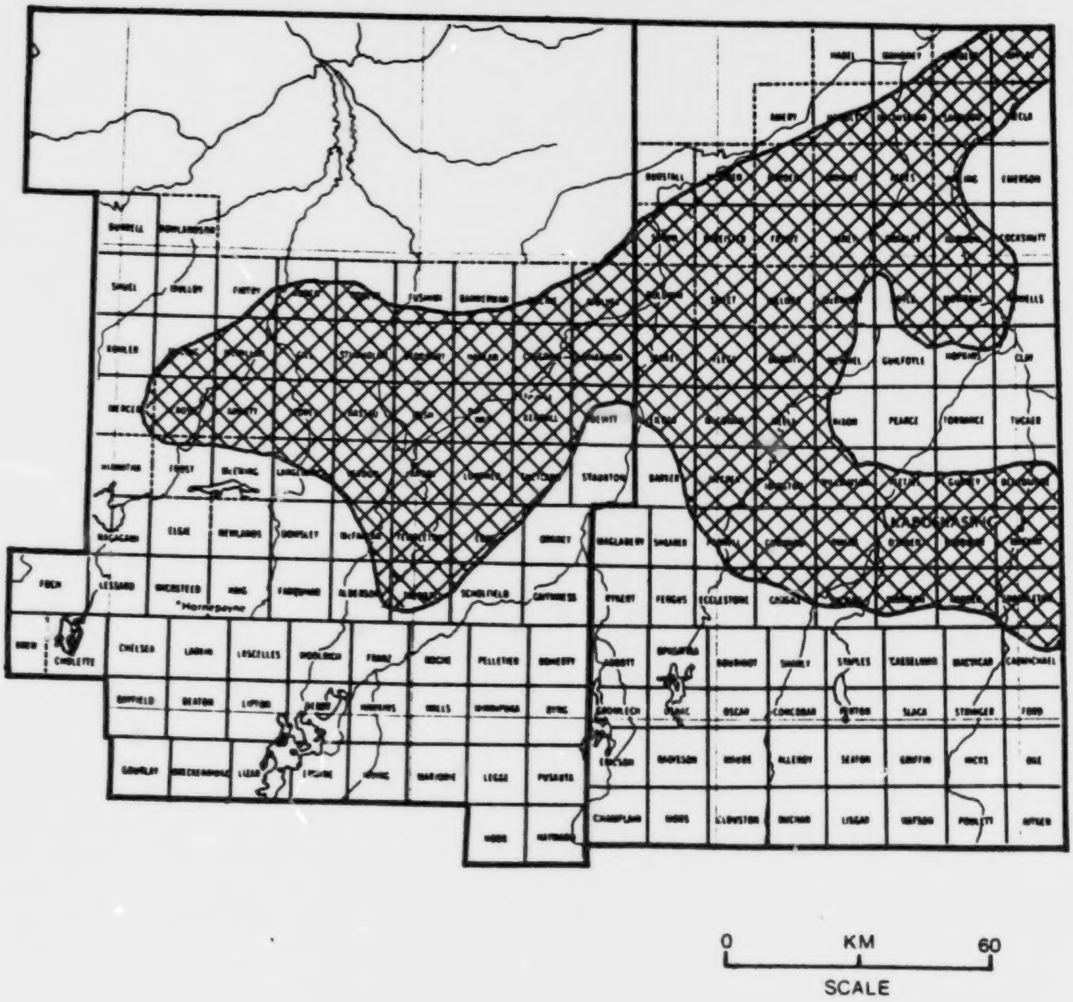
Areas within which defoliation occurred in 1974

LEGEND

Light defoliation ▨ or ⦶

Moderate-to-severe defoliation ▩

HEARST AND KAPUSKASING DISTRICTS


KAPUSKASING
STAUNTON
Hornepayne
FOCH
LESSARD
ELGIE
CHOLETTE
CHELSEA
LASCELLES
ROCHE
PELLETIER
WELLS
SCHOLFIELD
CAITHNESS
TUCKER
0
KM
60
SCALE

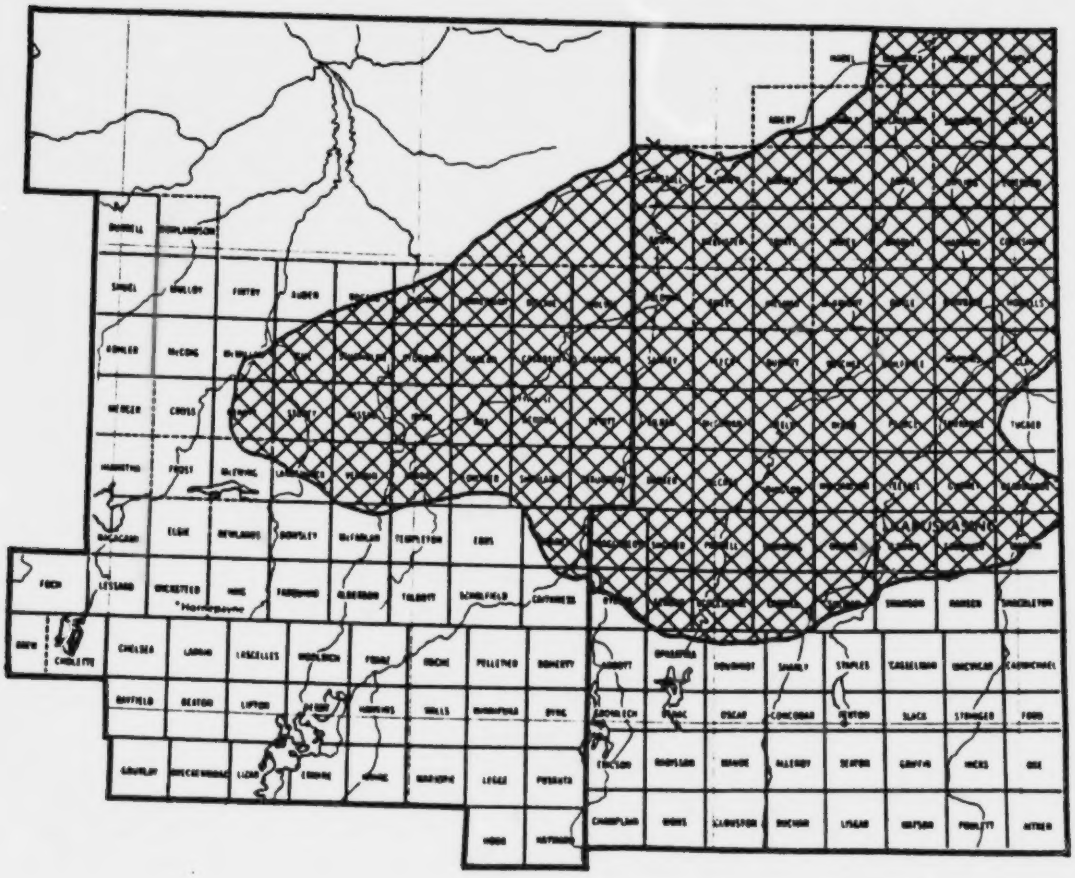
FOREST TENT CATERPILLAR

Areas within which defoliation occurred in 1975

LEGEND

Moderate-to-severe defoliation ▨

HEARST AND KAPUSKASING DISTRICTS


ELGIE
NEWLANDS
TEMPLETON
FOCH
LESSARD
TALBOTT
SCHOLFIELD
CAITHNESS
CHOLETTE
CHELSEA
LASCELLES
PELLETIER
DOHERTY
BEATON
LIPTON
WALLS
LEGGE
KAPUSKASING
0
KM
60
SCALE

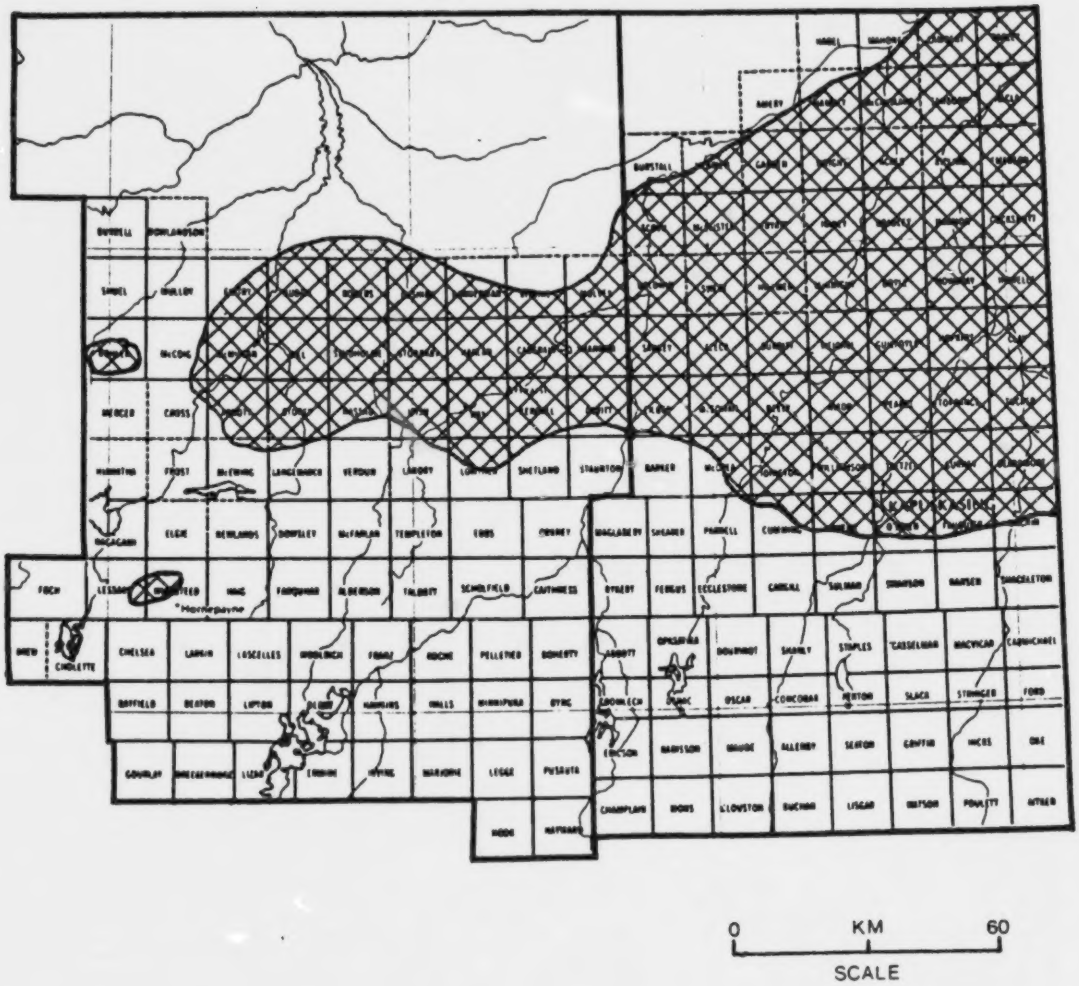
FOREST TENT CATERPILLAR

Areas within which defoliation occurred in 1976

LEGEND

Moderate-to-severe defoliation ▨

HEARST AND KAPUSKASING DISTRICTS


BURSTALL
AMERY
McCOIG
CROSS
FROST
McEWING
VERDUN
LANDRY
SHETLAND
STAUNTON
BARKER
ELGIE
NEWLANDS
DOWSLEY
McFARLAN
TEMPLETON
EBBS
SHEARER
PARNELL
CUMMING
FOCH
LESSARD
NAG
FARQUHAR
ALDERSON
TALBOT
SCHOLFIELD
CAITHNESS
FERGUS
ECCLESTONE
CARGILL
SULMAN
SHACKLETON
°Hornepayne
CHELSEA
PELLETIER
DOHERTY
ABBOTT
STAPLES
CASSELMAN
MACVICAR
CARMICHAEL
BEATON
LIPTON
WALLS
OSCAR
CORCORAN
SLACK
STRINGER
FORD
GOURLAY
LEGGE
ERICSON
MAUDE
ALLENBY
GRIFFIN
HICKS
ORE
HOOD
CHAMPLAIN
BUCHAN
LISGAR
AITKEN
KAPUSKASING
0
KM
60
SCALE

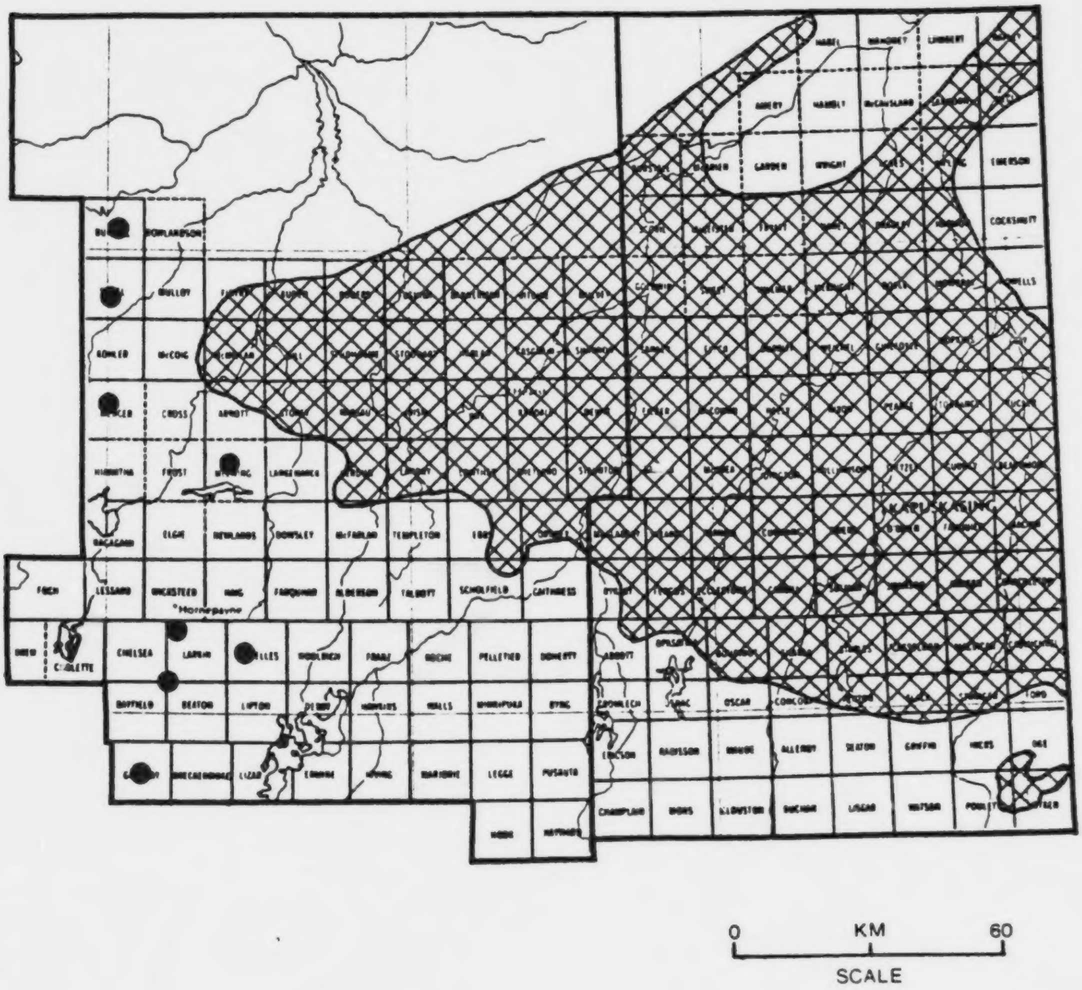
FOREST TENT CATERPILLAR

Areas within which defoliation occurred in 1977

LEGEND

Moderate-to-severe defoliation ▨

HEARST AND KAPUSKASING DISTRICTS


KAPUSKASING
Hornepayne
CROSS
ABBOTT
FROST
ELGIN
TEMPLETON
CHELSEA
PELLETIER
DOHERTY
LEGGE
0
KM
60
SCALE

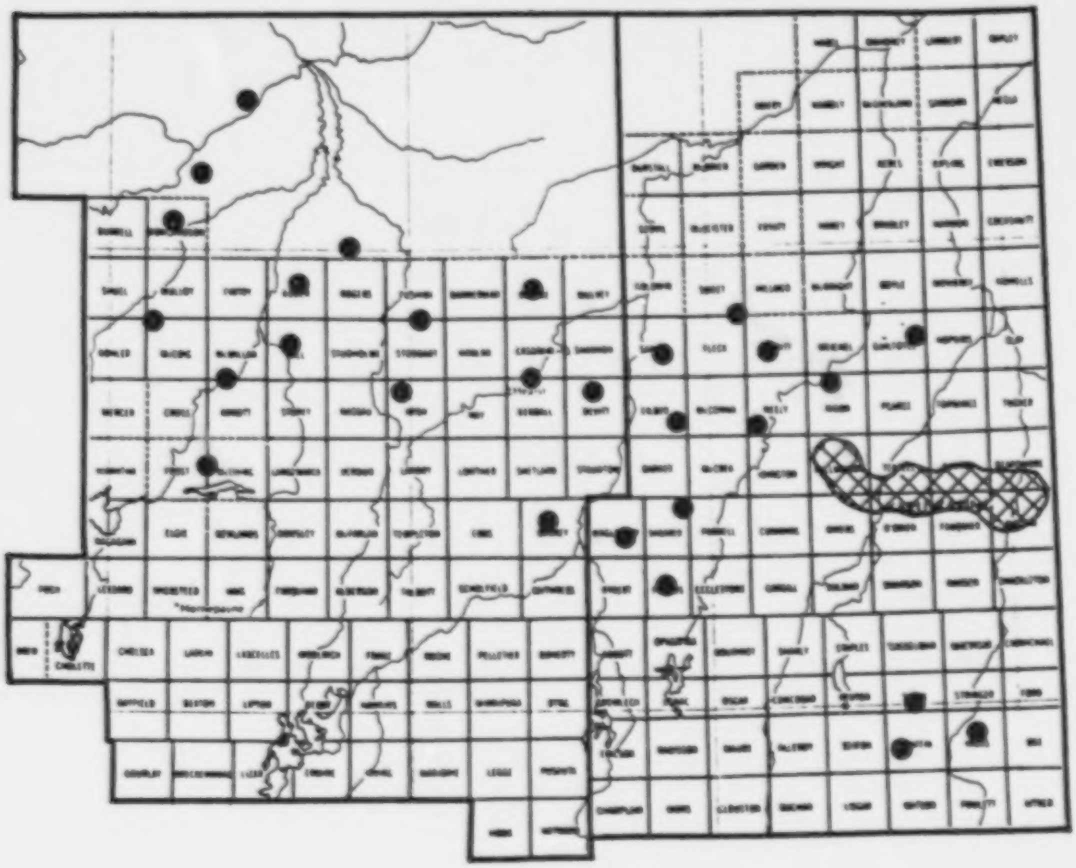
FOREST TENT CATERPILLAR

Areas within which defoliation occurred in 1978

LEGEND

Moderate-to-severe defoliation ● or ▨

HEARST AND KAPUSKASING DISTRICTS



0
KM
60
SCALE

FOREST TENT CATERPILLAR

Areas within which defoliation occurred in 1979

LEGEND

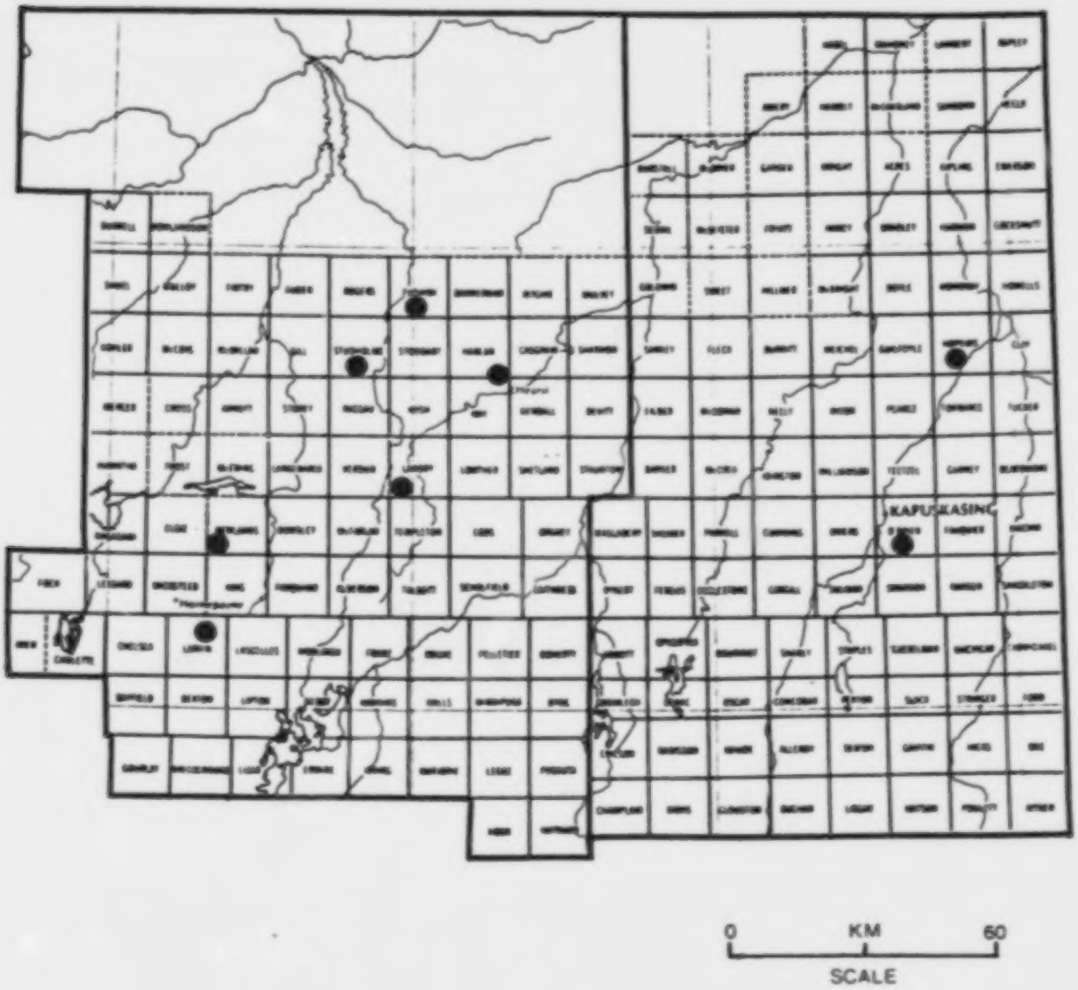
Moderate-to-severe defoliation ● or ▨

Whitespotted Sawyer, *Monochamus scutellatus* (Say)

Host(s): coniferous [Major]

Year	Remarks
1950-1954	not reported
1955	moderate-to-severe damage to spruce trees by adult sawyers in Nansen Twp
1956	low populations
1957	not reported
1958	low populations
1959-1966	not reported
1967	light damage to white spruce in Lisgar Twp
1968-1976	not reported
1977	High populations of adults caused severe damage to seed trees and new growth in cutover areas in the Spruce Falls Pulp and Paper Co. limits north of Kapuskasing.
1978	branch mortality of white and black spruce in Fauquier and Ecclestone twps after thinning and cutting operations
1979	high populations in Fauquier Twp
1980	Moderate-to-severe damage to seed trees and residual black spruce trees in Hopkins and O'Brien twps (see map, page 62).

HEARST AND KAPUSKASING DISTRICTS


KAPUSKASING
0
KM
60
SCALE

WHITESPOTTED SAWYER

Locations where damage
was observed in 1980

LEGEND

Damage areas ●

Pine Sawflies, *Neodiprion compar* Roh., *N. maurus* (Leach), *N. nanulus nanulus* Schedl, *N. nigroscutum* (Midd.), *N. pratti banksianae* Roh. and *N. virginianus* complex

Host(s): jP [Major]

Year		Remarks
1950-1953		not reported
1954-1959	*N. virginianus*	light defoliation in O'Brien, Fauquier, Machin, Teetzel and Sweet twps
1960	*N. virginianus*	light defoliation in Fauquier and Sweet twps
	N. maurus	one colony in Sweet Twp
	N. compar	one colony in Sweet Twp
1961	*N. virginianus*	low populations in Gurney Twp
	N. nigroscutum	one colony in Fauquier Twp
1962	*N. virginianus*	low populations in Gurney Twp
1963		not reported
1964-1965	*N. virginianus*	low populations in Gurney Twp
1966		not reported
1967	*N. virginianus*	low populations in Torrance and Gurney twps
	N. nanulus nanulus	light in Kipling Twp
	N. nigroscutum	light in Kipling Twp
	N. maurus	light in Gurney Twp
1968	*N. virginianus*	light in Harmon Twp
	N. pratti banksianae	very low in Kipling Twp
1969-1970		not reported

(cont'd)

Pine Sawflies, *Neodiprion maurus* Roh, *N. compar* (Leach), *N. nanulus nanulus* Schedl, *N. nigroscutum* (Midd.), *N. pratti banksianae* Roh., *N. virginianus* complex (concl.)

Year		Remarks
1971	*N. virginianus*	low populations in Kipling and Gurney twps
	N. nanulus nanulus	low populations in Gurney Twp
1972-1973		not reported
1974	*N. virginianus*	few colonies in Fauquier Twp
1975	*N. virginianus*	severely defoliated plantation in Fauquier Twp
	N. nanulus nanulus	low defoliation in Kipling Twp
1976		not reported
1977-1978	*N. virginianus*	low populations
1979-1980		not reported

Northern Pitch Twig Moth, *Petrova albicapitana* (Busck)

Host(s): pine [Minor]

Year	Remarks
1950-1954	not reported
1955	light infestations in pine plantations in Fauquier, Teetzel and Eilber twps
1956	population decline in the district
1957-1962	low populations in Fauquier and Gurney townships
1963-1964	not reported
1965	low levels in Fenton and Gurney twps
1966	not reported

(cont'd)

Northern Pitch Twig Moth, *Petrova albicapitana* (Busck) (concl.)

Year	Remarks
1967-1968	high populations in a .5-ha jack pine plantation in Gurney Twp; low populations in Fauquier Twp
1969-1973	not reported
1974-1979	low levels common in the district
1980	low populations on regeneration in Kipling Twp

Aspen Leafblotch Miner, *Phyllonorycter ontario* (Free.)

Host(s): aspen [Major]

Year	Remarks
1950-1951	common in the District
1952	decline in infestations
1953	very low populations
1954-1955	not reported
1956	moderate-to-severe defoliation in Goldwin Twp
1957	decline in Goldwin Twp
1958-1961	low populations general in the District
1962	slight increase in populations
1963	light infestation common in the District
1964-1965	a decline in populations
1966	medium-to-heavy infestations in Gurney and O'Brien twps
1967	a decline in populations in Gurney and O'Brien twps
1968-1969	low populations general in the District
1970-1971	not reported

(cont'd)

Aspen Leafblotch Miner, *Phyllonorycter ontario* (Free.) (concl.)

Year	Remarks
1972	low populations general in the District
1973	a general increase in population levels
1974	Light infestations general in the District
1975-1976	not reported
1977	low populations general in the District
1978-1980	not reported

Yellowheaded Spruce Sawfly, *Pikonema alaskensis* (Roh.)

Host(s): spruce [Major]

Year	Remarks
1950-1953	low populations
1954-1957	light defoliation in Fauquier and O'Brien twps
1958	moderate-to-severe defoliation in Mowbray Twp
1959	moderate-to-severe defoliation in Parnell Twp
1960	low populations
1961	moderate-to-severe defoliation in Fauquier Twp
1962-1963	light defoliation in Fauquier Twp
1964	not reported
1965-1966	light defoliation in Fenton, Macvicar, Owens and Gurney twps
1967	moderate-to-severe defoliation in Howells, light in Cargill and Owens twps
1968	moderate-to-severe defoliation in O'Brien Twp; low populations elsewhere

(cont'd)

Yellowheaded Spruce Sawfly, *Pikonema alaskensis* (Roh.) (concl.)

Host(s): spruce [Major]

Year	Remarks
1969	light defoliation in Kipling Twp
1970-1971	moderate-to-severe defoliation on ornamentals in urban areas
1972-1973	low populations on ornamentals in urban areas
1974	increase in populations on ornamentals
1975	moderate-to-severe defoliation of ornamentals in urban areas, and on regeneration in Kipling Twp
1976-1977	moderate-to-severe defoliation of ornamentals in urban areas
1978	moderate-to-severe damage in planted white spruce in Sankey Twp
1979	decline in populations in Sankey Twp
1980	moderate-to-severe defoliation of white spruce snow hedge in Fauquier Twp

White Pine Weevil, *Pissodes strobi* (Peck)

Host(s): pines, spruces [Major]

Year	Remarks
1950-1953	not reported
1954	heavy damage to leaders in Nansen Twp (64% infested)
1955	not reported
1956	moderate leader damage in Shackleton Twp (8% infested); light in Teetzel (2% infested)
1957	light damage in Fauquier Twp (5% infested)

(cont'd)

White Pine Weevil, *Pissodes strobi* (Peck) (concl.)

Year	Remarks
1958	heavy damage in Teetzel Twp (15% infested)
1959	not reported
1960	light damage in O'Brien, Teetzel, Pearce, Guilfoyle twps
1961	moderate damage in Teetzel and Pearce twps
1962	Severe damage in Fauquier and O'Brien twps (30% and 50%, respectively); light damage in Gurney Twp (3% infested)
1963	light leader damage in Fauquier and O'Brien twps (5% and 1%, respectively)
1964	higher populations in Pearce, Shearer and Parnell twps (18%, 4% and 18%, respectively); medium-to-heavy infestation in Fauquier Twp
1965	decline in damage in Pearce (6%), Shearer (3%) and Parnell (2%) twps; heavy damage to red pine trees in Fauquier Twp (9%)
1966	light damage in Lisgar and Gurney twps
1967	heavy leader damage in Owens Twp (50% infested); light damage in Gurney Twp
1968-1970	not reported
1971-1974	light damage in Fauquier, Casselman and Gurney twps
1975-1976	moderate damage in Fauquier, Casselman, Gurney, Cumming and Fergus twps
1977	declines in leader damage in Fauquier, Casselman, Cumming twps, with increases in Gurney and Fergus twps
1978	light leader damage in Fauquier, Cummings, Fergus and Sankey twps
1979	not reported
1980	moderate leader damage in Shearer Twp (9% infested)

Larch Sawfly, *Pristiphora erichsonii* (Htg.)

Host(s): tL [Major]

Year	Remarks
1950	light defoliation in Idington Twp
1951	light defoliation between Devitt and Williamson twps
1952-1953	numerous stands with light defoliation
1954	Populations increased, and there was moderate-to-severe defoliation in most stands.
1955	further increases in populations; moderate-to-severe defoliation in most stands examined
1956	a decline in populations; light defoliation at numerous locations
1957	a further decline; one area in Fauquier Twp severely defoliated; light defoliation elsewhere
1958	Populations increased in both the eastern and western parts of the District
1959	little change in infestations
1960	Light defoliation occurred at numerous locations.
1961	a decline in populations at all but two locations; some tree mortality observed in Teetzel and Pearce twps
1962	a further decline in populations; only a few locations with light defoliation; low mortality in the eastern and western parts of the District
1963	not reported
1964	light defoliation at three locations
1965-1966	light populations general in the District
1967	medium-to-heavy infestations in Casselman and Howells twps
1968	low populations general in the District
1969	light defoliation in Fauquier and Casselman twps

(cont'd)

Larch Sawfly, *Pristiphora erichsonii* (Htg.) (concl.)

Host(s): tL [Major]

Year	Remarks
1970-1973	light defoliation general in the District
1974	moderate-to-severe defoliation in Gurney and Sulman twps
1975	light defoliation general in the District
1976	moderate-to-severe defoliation of European larch in Fauquier Twp
1977	moderate-to-severe defoliation along Hwy 11 between Mattice and the Kapuskasing-Cochrane district boundary; moderate damage to European larch in Fauquier Twp
1978-1980	a general decline to low populations

Mountain-ash Sawfly, *Pristiphora geniculata* (Htg.)

Host(s): aMo [Major]

Year	Remarks
1950-1960	not reported
1961	first distribution record in Guilfoyle Twp
1962	light defoliation in Nixon Twp
1963-1969	not reported
1970	light defoliation in eastern part of District
1971	new distribution record in Kipling Twp
1971-1973	Light defoliation persisted in Kipling Twp.
1974	high populations along the Chain of Lakes road
1975	low populations in Kipling Twp
1976-1978	high populations on ornamentals in Kapuskasing and along the Chain of Lakes road
1979-1980	high populations on ornamentals in the District

Ambermarked Birch Leafminer, *Profenusa thomsoni* (Konow)

Host(s): birch [Major]

Year	Remarks
1950-1955	not reported
1956-1957	low populations general in the District
1958-1969	severe browning in Opasatika, Fauquier, O'Brien, Casselman, Williamson, Seaton, Shearer, Griffin and Guilfoyle twps
1970	moderate browning along the Chain of Lakes road
1971-1972	low populations general in the District
1973	not reported
1974	light defoliation in Fauquier Twp
1975-1977	not reported
1978	low populations general in the District
1979-1980	not reported

Other Noteworthy Insects

Eastern Blackheaded Budworm, *Acleris variana* (Fern.)

Host(s): spruce, bF [Minor]

Year	Remarks
1950	not reported
1951-1959	low populations in the District
1960-1962	common in Eilber and Barker twps
1963	not reported
1964-1965	low populations general in the District
1966	light infestation in Fauquier and Owens twps

(cont'd)

Eastern Blackheaded Budworm, *Acleris variana* (Fern.) (concl.)

Host(s): spruce, bF [Minor]

Year	Remarks
1967	not reported
1968	low levels general in the District
1969-1980	not reported

Pine Spittlebug, *Aphrophora cribrata* (Wlk.)

Host(s): conifers [Major]

Year	Remarks
1950-1958	not reported
1959-1960	light infestation in Fauquier Twp
1961	not reported
1962	light populations general in the District
1963-1980	not reported

Cedar Leafminers, *Argyresthia aureoargentella* Brower, *Pulicalvaria thujaella* (Kft.)

Host(s): eC [Major]

Year	Remarks
1950-1957	not reported
1958	light browning in Usnac and Opasatika twps
1959	common in the District
1960	low populations in the District
1961	not reported
1962	common in the District
1963-1980	not reported

Fringed Birch Sawfly, *Dimorphopteryx melanognathus* Roh.

Host(s): birch [Major]

Year	Remarks
1950-1961	not reported
1962	light defoliation in Fauquier Twp; first record in the District
1963	continued low populations in Fauquier Twp
1964-1980	not reported

Spruce Coneworm, *Dioryctria reniculelloides* Mut. & Mun.

Host(s): spruce [Minor]

Year	Remarks
1950-1965	not reported
1966	low numbers general in the District
1967-1977	not reported
1978	coneworms numerous in Fauquier Twp
1979	severe cone damage in Fauquier Twp
1980	not reported

Birch Leafminer, *Fenusa pusilla* (Lep.)

Host(s): birch [Major]

Year	Remarks
1950-1966	not reported
1967	moderate-to-heavy infestation in the town of Kapuskasing; first District record
1968	low populations in O'Brien Twp

(cont'd)

Birch Leafminer, *Fenusa pusilla* (Lep.) (concl.)

Year	Remarks
1969	not reported
1970	low levels in O'Brien and Fauquier twps
1971	not reported
1972	low levels in O'Brien Twp
1973-1974	not reported
1975-1976	moderate-to-severe browning in O'Brien and Fauquier twps
1977-1980	not reported

European Spruce Sawfly, *Gilpinia hercyniae* (Htg.)

Host(s): spruce [Minor]

Year	Remarks
1950-1960	not reported
1961	low numbers, first distribution record in Guilfoyle Twp
1962	low populations in the District
1963-1964	not reported
1965	increase in numbers in the District
1966	not reported
1967	low numbers in the District
1968-1969	not reported
1970	low populations in Teetzel Twp
1971-1980	not reported

Warren's Collar Weevil, *Hylobius warreni* Wood

Host(s): coniferous [Minor]

Year	Remarks
1950-1964	not reported
1965	medium-to-heavy infestation on scP in Fauquier Twp
1966-1970	moderate-to-severe damage on jP in Fauquier Twp; light damage in bS plantation in the District
1971-1977	not reported
1978	mortality of young scP and bS in Magladery Twp
1979-1980	not reported

Balsam Fir Sawfly, *Neodiprion abietis* complex

Host(s): spruce, bF [Major]

Year	Remarks
1950-1952	not reported
1953-1958	low numbers general in the District
1959	not reported
1960	light infestation in Barker Twp
1961	light infestation in Guilfoyle Twp
1962-1964	low populations in the District
1965	slight increase in Nansen Twp
1966-1968	low populations in the District
1969-1973	not reported
1974	low populations in the District
1975-1980	not reported

Balsam Shootboring Sawfly, *Pleroneura brunneicornis* Roh.
(= *borealis* Felt)

Host(s): bF [Minor]

Year	Remarks
1950-1959	not reported
1960	light infestation in Barker Twp
1961	not reported
1962	low levels in the District
1963	not reported
1964	an increase in infestation in Fauquier Twp
1965-1966	low populations in the District
1967	light infestation in Fergus and Shackleton twps
1968	low numbers in the District
1969-1980	not reported

Spruce Bud Midge, *Rhabodphaga swainei* Felt

Host(s): spruce [Minor]

Year	Remarks
1950-1959	not reported
1960	common in all examined stands in Eilber and Owens twps
1961	low populations in Parnell and Macvicar twps
1962	low populations in McCrea Twp
1963	common in Macvicar Twp
1964	decline in populations in Macvicar Twp
1965	low populations in the District
1966	increase in infestation in Macvicar Twp

Spruce Bud Midge, *Rhabodphaga swainei* Felt (concl.)

Year	Remarks
1967	low populations in McCrea and Macvicar twps
1968	slight increase in McCrea Twp
1969	not reported

Pine Tip Moth, *Rhyacionia adana* Heinr.

Host(s): pine [Major]

Year	Remarks
1950-1959	not reported
1960	low populations, first distribution record in Fauquier Twp
1961	not reported
1962	low populations in Gurney Twp
1963-1966	not reported
1967	low numbers in nursery in Fauquier Twp
1968-1980	not reported

Aspen Webworm, *Tetralopha aplastella* (Hlst.)

Host(s): aspen [Minor]

Year	Remarks
1950-1961	not reported
1962	light infestation in Gurney Twp
1963	moderate-to-severe infestation in Fauquier Twp
1964	a further increase in Fauquier Twp

(cont'd)

Aspen Webworm, *Tetralopha aplastella* (Hlst.) (concl.)

Year	Remarks
1965	a decline in Fauquier Twp
1966-1968	not reported
1979	common in McCowan Twp
1980	not reported

Poplar Blackmine Beetle, *Zeugophora abnormis* Lec.

Host(s): poplar [Minor]

Year	Remarks
1950-1954	not reported
1955-1960	low populations general in the District
1961	low populations in Seaton and Gurney twps
1962-1980	not reported

DISEASES

Armillaria Root Rot, *Armillaria mellea* (Vahl: Fr.) Kummer

Host(s): all species

[Major]

Year	Remarks
1950-1962	not reported
1963	light damage on jP in Seaton Twp
1964-1967	not reported
1968-1970	trace damage on jP in Seaton Twp
1971	moderate damage in O'Brien, Macvicar and Casselman twps
1972-1973	light tree mortality in bS plantation in Stringer, O'Brien and Macvicar twps
1974-1978	light damage in jack pine plantations in the District
1979-1980	not reported

Scleroderris Canker, *Ascocalyx abietina* (Lagerb.) Schläpfer-Bernhard

Host(s): pine

[Major]

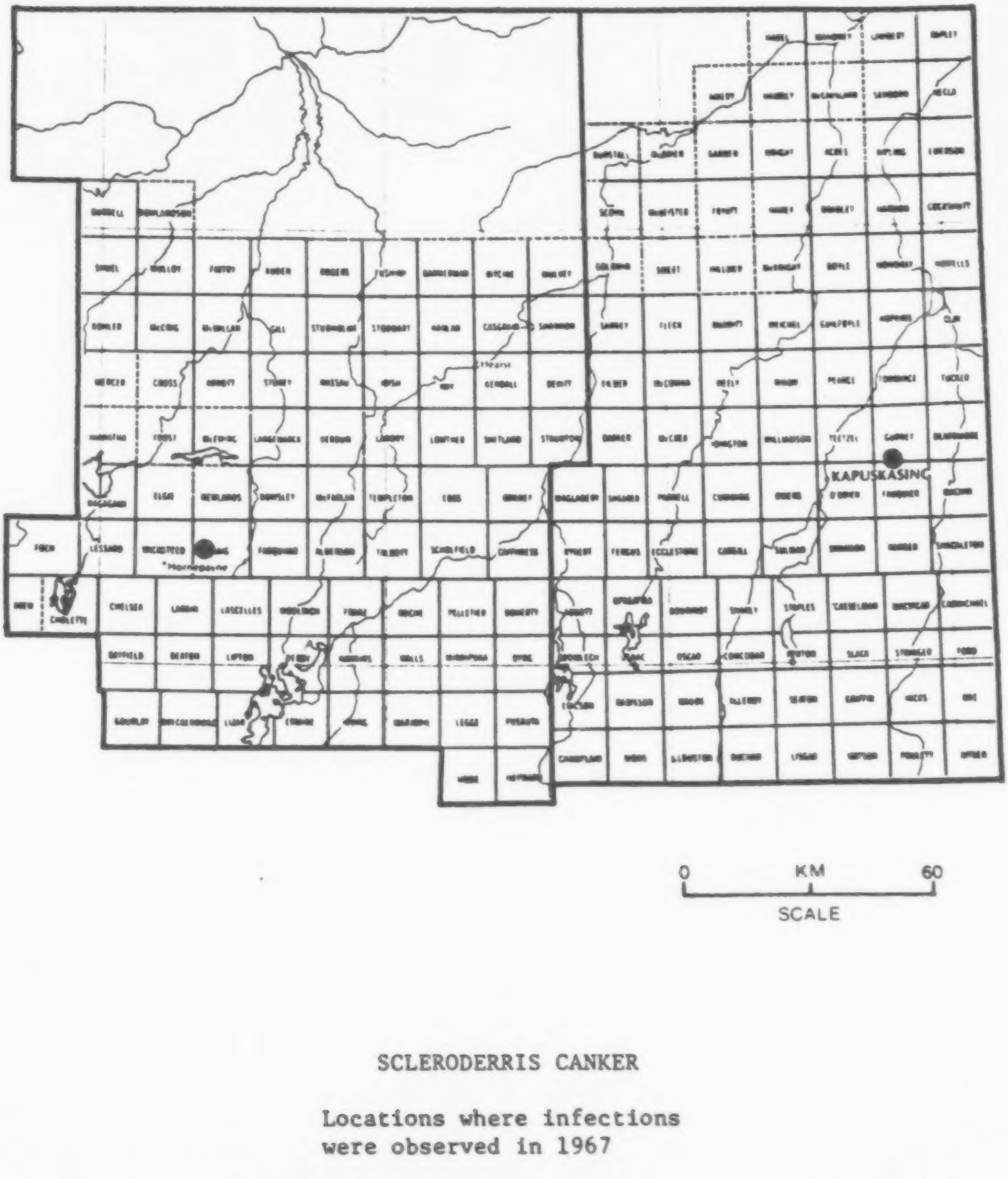
Year	Remarks
1950-1965	not reported
1966	light-to-moderate in Fauquier Twp
1967	severe infections persisted (see map, page 83).
1968	not reported
1969	trace levels in Fauquier Twp
1970	not reported
1971	trace levels in Kipling; new northern distribution
1972	moderate levels in Fauquier twp

(cont'd)

Scleroderris Canker, *Ascocalyx abietina* (Lagerb.) Schläpfer-Bernhard (concl.)

Year	Remarks
1973-1975	low infections at a few locations
1976-1978	not reported
1979-1980	trace levels in Kipling Twp

HEARST AND KAPUSKASING DISTRICTS


KAPUSKASING
0
KM
60
SCALE

SCLERODERRIS CANKER

Locations where infections were observed in 1967

LEGEND

Several records ●

Spruce Needle Rust, *Chrysomyxa ledi* (Alb. & Schwein.) de Bary and
C. ledicola (Peck) Lagerh.

Host(s): spruce [Major]

Year	Remarks
1950-1953	not reported
1954-1955	low levels of infection in the District
1956-1961	not reported
1962-1963	low levels of infection in Idington Twp
1964	light-to-moderate levels in Fenton Twp
1965	severe browning in Gurney Twp; moderate in Fenton Twp
1966-1968	reduction to low levels of infection
1969	small pocket of heavy infection in Idington Twp
1970	moderate infection in Teetzel Twp
1971-1972	not reported
1973	severe infection in Shearer Twp; light in Teetzel Twp
1974	varying degrees of infection in Mowbray Twp
1975	moderate damage in Owens and Cargill twps
1976-1977	low levels of infection in the District
1978	moderate-to-severe infection in McCrea Twp
1979-1980	low levels of infection in the District

Ink Spot of Aspen, *Ciborinia whetzelii* (Seaver) Seaver

Host(s): aspen [Major]

Year	Remarks
1950-1957	not reported

(cont'd)

Ink Spot of Aspen, *Ciborinia whetzelii* (Seaver) Seaver (concl.)

Host(s): aspen [Major]

Year	Remarks
1958	heavy infections in O'Brien Twp
1959	moderate-to-severe infection along Hwy 11
1960	common in the District
1961-1962	not reported
1963	increase in incidence in the District
1964	light-to-moderate incidence in the District
1965	moderate-to-heavy in Owens and Cummings twps to the Hearst District boundary
1966-1968	general decline in infection levels
1969	light infection in Eilber, Indington, Owens and O'Brien twps
1970	severe infection in Lisgar Twp
1971-1972	general decline in Lisgar Twp
1973-1974	severe infections in Buchan, Fauquier and O'Brien twps
1975	light infections general in the District
1976-1977	not reported
1978	light damage in Swanson, Lisgar and Fauquier twps
1979-1980	light damage general in the District

Sweet Fern Blister Rust, *Cronartium comptoniae* Arthur

Host(s): jP [Major]

Year	Remarks
1950-1957	not reported

(cont'd)

Sweet Fern Blister Rust, *Cronartium comptoniae* Arthur (concl.)

Host(s): jP [Major]

Year	Remarks
1958	light infection in Machin Twp
1959-1970	not reported
1971	light infection in Kipling Twp
1972-1978	not reported
1979	light infection in Fauquier and Kipling twps
1980	not reported

White Pine Blister Rust, *Cronartium ribicola* J.C. Fischer

Host(s): wP [Major]

Year	Remarks
1950-1962	not reported
1963-1965	low in Fauquier Twp
1966-1970	not reported
1971-1973	light infection in Fauquier Twp
1974-1977	not reported
1978-1979	moderate-to-severe infection in Fauquier Twp
1980	not reported

Jack Pine Needle Cast, *Davisomycella ampla* (J. Davis) Darker

Host(s): jP [Minor]

Year	Remarks
1950-1959	not reported

(cont'd)

Jack Pine Needle Cast, *Davisomycella ampla* (J. Davis) Darker (concl.)

Host(s): jP [Minor]

Year	Remarks
1960	light infections in the District
1961-1963	not reported
1964	low incidence in the District
1965-1975	not reported
1976-1979	low incidence in the District
1980	severe infection levels in Kipling Twp

Western Gall Rust, *Endocronartium harknessii* (J.P. Moore)

Host(s): jP [Major]

Year	Remarks
1950-1969	not reported
1970	trace infections in the District
1971-1972	not reported
1973	low damage in Farquhar Twp
1974	trace infections in the District
1975-1976	40% incidence in plantations in O'Brien Twp
1977	not reported
1978	common in plantations in Harmon twp
1979	light in Kipling Twp
1980	low levels of infection

Hypoxylon Canker, *Hypoxylon mammatum* (Wahlenb.) J. Miller

Host(s): tA [Major]

Year	Remarks
1950-1952	not reported
1953	low levels of infection in Fauquier Twp
1954-1955	widely separated areas of infection
1956-1961	not reported
1962-1963	extensive damage in the District
1964-1967	light infection levels in Fauquier and Way twps
1968	severe damage in Fauquier Twp (34% infected)
1969	high incidence in O'Brien, Eilber and Fauquier twps; moderate in Shackleton and McRea twps
1970-1972	little change in infection levels in the District
1973	high incidence in Fauquier Twp; moderate in Casselman, O'Brien and Shackleton twps
1974-1980	little change in infection levels in the District

Larch-poplar Rust, *Melampsora medusae* Thüm.

Host(s): larch [Major]

Year	Remarks
1950-1962	not reported
1963-1966	light damage in Fauquier and Casselman twps
1967-1980	not reported

Shoot Blight, *Venturia macularis* (Fr.) E. Müller & v. Arx

Host(s): tA [Major]

Year	Remarks
1950-1962	not reported
1963-1964	severe infection at numerous locations
1965	severe infection in Casselman, Ecclestone, Fauquier and Teetzel twps
1966	not reported
1967-1968	light infection in Slack and Torrance twps
1969-1971	not reported
1972-1973	trace levels in the District
1974-1975	not reported
1976	severe damage in Fergus, Opasatika and Fauquier twps
1977	light damage in the District
1978-1980	not reported

ABIOTIC DAMAGE

Frost

Year	Remarks
1950-1953	not reported
1964	severe damage in Gurney and Fauquier twps
1965	severe damage to wS and bF in the District
1966-1967	not reported
1968	severe damage to wS in the central and northern parts of the District
1967-1971	not reported
1972	severe damage to bF shoots in the southeastern part of the District
1973-1977	not reported
1978	severe damage in Teetzel Twp; light in Fauquier and McCrea twps
1979	some damage in low-lying areas
1980	moderate damage from frost and snow in the District

Wind

Year	Remarks
1950-1972	not reported
1973	severe blowdown at Remi Lake
1974	not reported
1975	severe damage to aspen and pine in Kipling Twp
1976-1980	not reported

Hail

Year	Remarks
1950-1974	not reported
1975	18 km^2 of damage to aspen and jack pine in Barker Twp
1976-1980	not reported

APPENDICES

APPENDIX A

DECIDUOUS HOST

Common Name	Scientific Name	Abbreviations
Alder	*Alnus* spp.	Al
Apple	*Malus* spp.	Ap
Ash, black	*Fraxinus nigra* Marsh.	As
Aspen, largetooth	*Populus grandidentata* Michx.	lA
trembling	*tremuloides* Michx.	tA
Basswood	*Tilia* spp.	Ba
Beech	*Fagus grandifolia* Ehrh.	Be
Birch, white	*Betula papyrifera* Marsh.	wB
yellow	*alleghaniensis* Britt.	yB
Butternut	*Juglans cinerea* L.	Bu
Cherry, eastern choke	*Prunus virginiana* L.	eaCh
pin	*pensylvanica* L.f.	pCh
Elm, white	*Ulmus americana* L.	wE
Horse-chestnut	*Aesculus hippocastanum* L.	hChe
Ironwood	*Ostrya* spp.	I
Maple, Manitoba	*Acer negundo* L.	mM
red	*rubrum* L.	rM
sugar	*saccharum* Marsh.	sM
Mountain-ash, American	*Sorbus americana* Marsh.	aMo
Oak, bur	*Quercus macrocarpa* Michx.	bO
red	*rubra* L.	rO
Poplar, balsam	*Populus balsamifera* L.	bPo
Carolina	*eugenei* Simon-Louis	cPo
Lombardy	*nigra* L.	lPo
silver	*alba* L.	sPo
Willow	*Salix* spp.	W

APPENDIX B

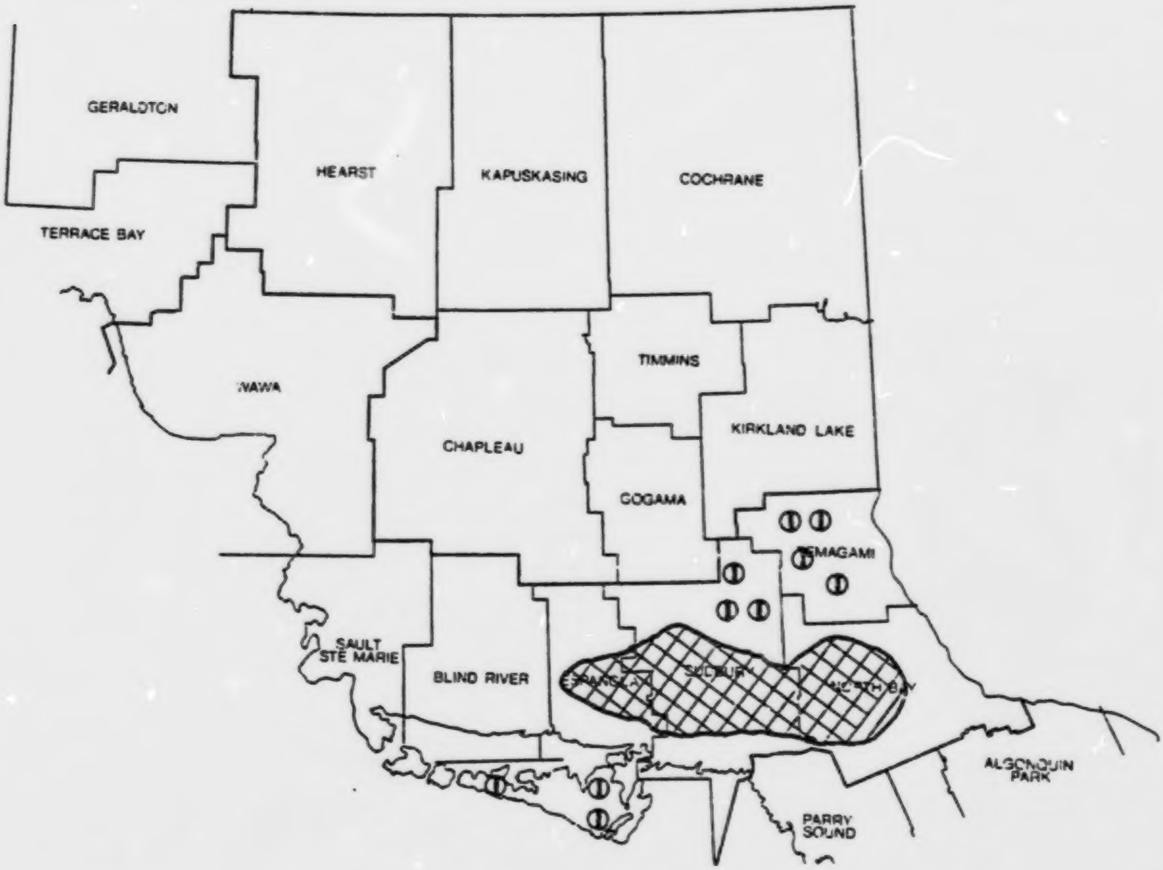
CONIFEROUS HOST

Common Name	Scientific	Abbreviations
Cedar, eastern white	*Thuja occidentalis* L.	eC
Fir, balsam	*Abies balsamea* (L.) Mill.	bF
Larch	*Larix laricina* (Du Roi) K. Koch	tL
Pine, Austrian	*Pinus nigra* Arn.	aP
eastern white	*strobus* L.	wP
jack	*banksiana* Lamb.	jP
mugho	*mugho* Turra	mP
red	*resinosa* Ait.	rP
Scots	*sylvestris* L.	scP
Spruce, black	*Picea mariana* (Mill.) B.S.P.	bS
Colorado	*pungens* Engelm.	colS
Norway	*abies* (L.) Karst.	nS
red	*rubens* Sarg.	rS
white	*glauca* (Moench) Voss	wS

APPENDIX C

MAPS - NORTHEASTERN ONTARIO

NORTHEASTERN ONTARIO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KIRKLAND LAKE
GOGAMA
TEMAGAMI
SAULT STE MARIE
BLIND RIVER
ESPANOLA
SUDBURY
NORTH BAY
ALGONQUIN PARK
PARRY SOUND

0 Miles 60
0 Kilometres 96

Birch Skeletonizer

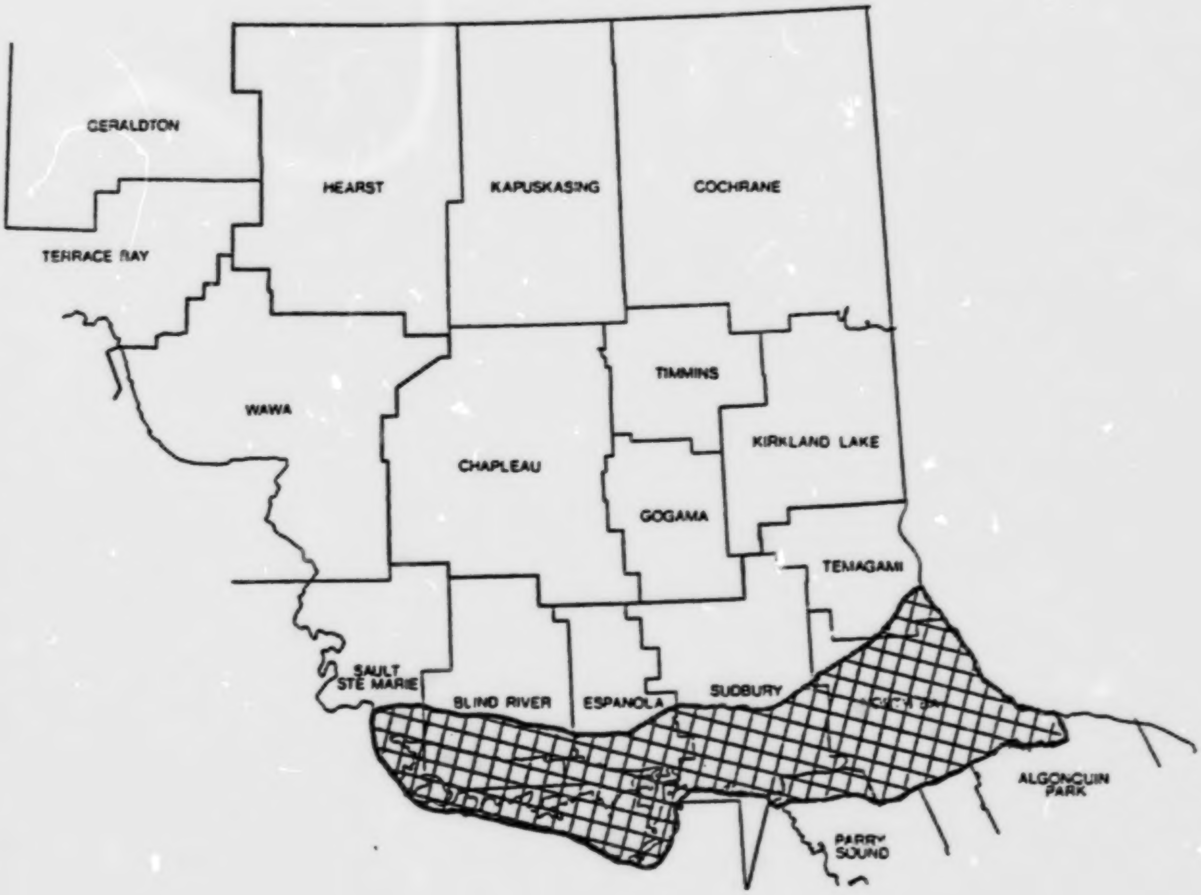
Areas within which defoliation
occurred in 1950

LEGEND

Light defoliation ⦶

Moderate-to-severe defoliation ▨

NORTHEASTERN ONTARIO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BLIND RIVER
ESPANOLA
SUDBURY
NORTH BAY
ALGONQUIN PARK
PARRY SOUND

0 Miles 60
0 Kilometres 96

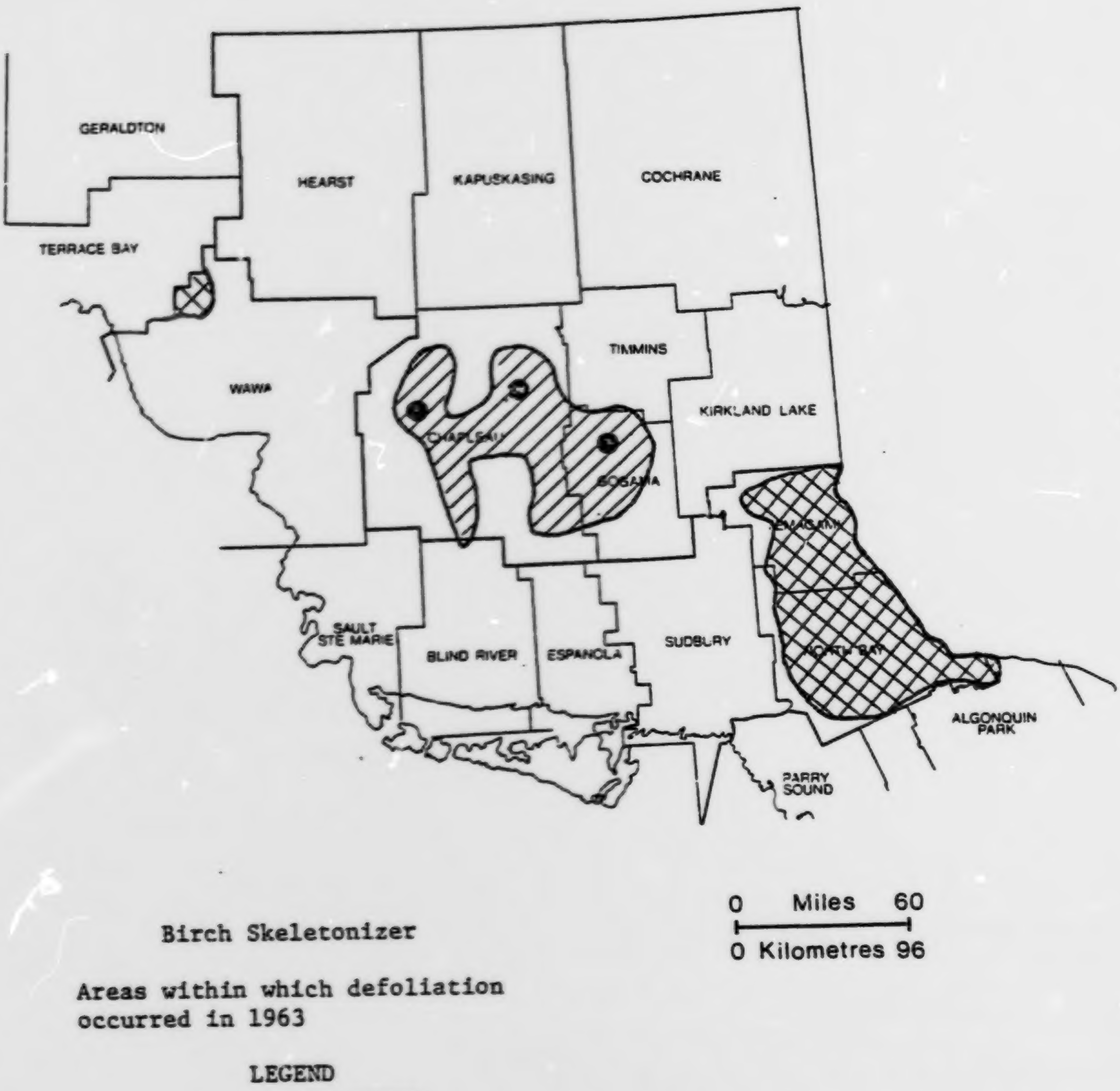
Birch Skeletonizer

Areas within which defoliation occurred in 1961

LEGEND

Moderate-to-severe defoliation ▨

NORTHEASTERN ONTARIO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SAULT STE MARIE
BLIND RIVER
ESPANOLA
SUDBURY
NORTH BAY
ALGONQUIN PARK
PARRY SOUND
0 Miles 60
0 Kilometres 96

Birch Skeletonizer

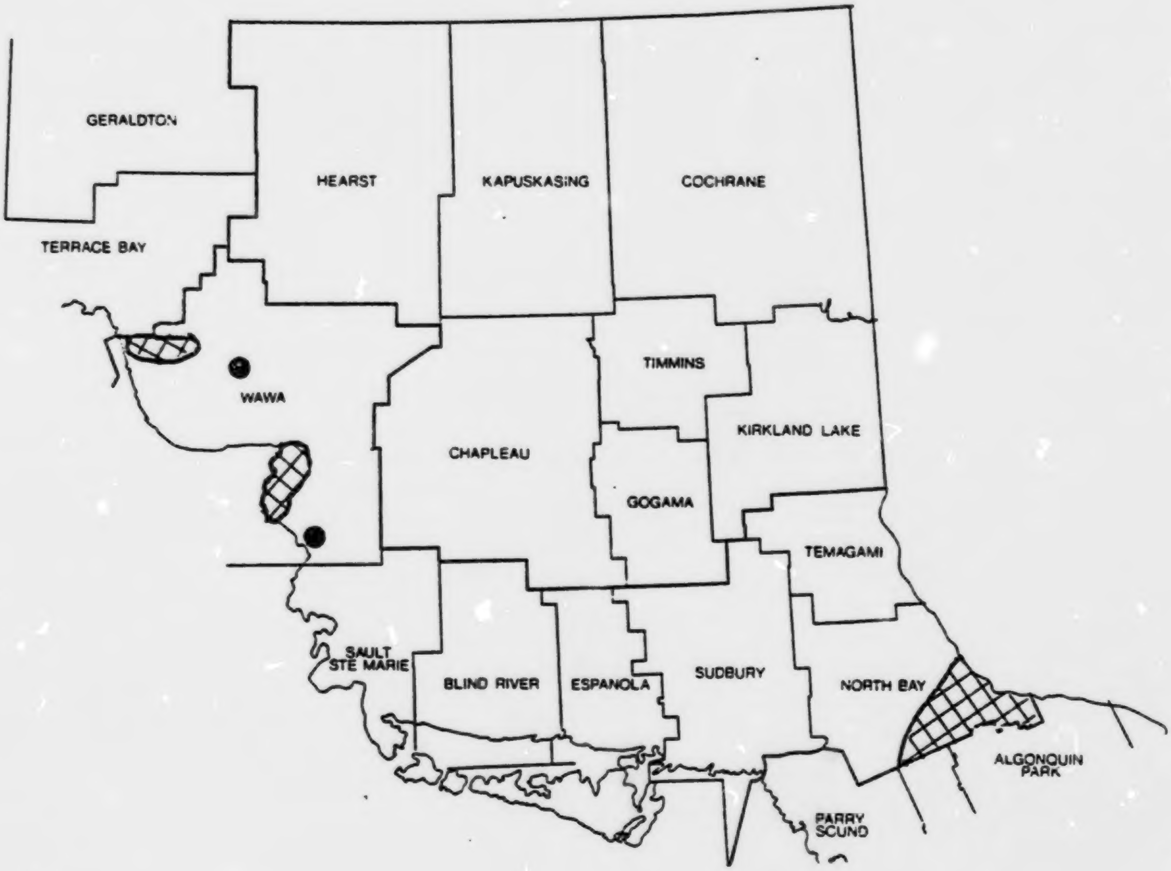
Areas within which defoliation occurred in 1963

LEGEND

Light defoliation ▨

Moderate-to-severe defoliation ● or ▩

NORTHEASTERN ONTARIO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SAULT STE MARIE
BLIND RIVER
ESPANOLA
SUDBURY
NORTH BAY
ALGONQUIN PARK
PARRY SOUND

Birch Skeletonizer

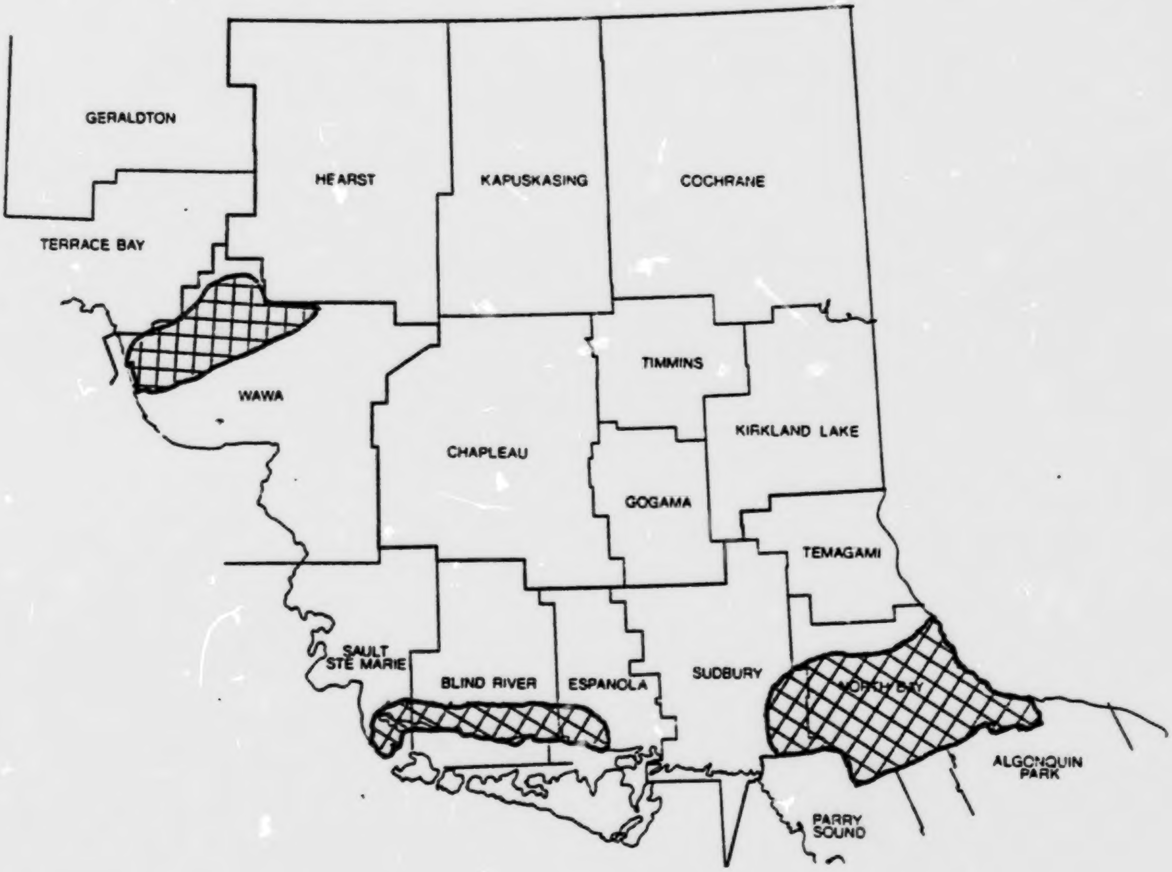
Areas within which defoliation occurred in 1970

0 Miles 60
0 Kilometres 96

LEGEND

Moderate-to-severe defoliation ● or ▨

NORTHEASTERN ONTARIO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BLIND RIVER
ESPANOLA
SUDBURY
NORTH BAY
ALGONQUIN PARK
PARRY SOUND

Birch Skeletonizer

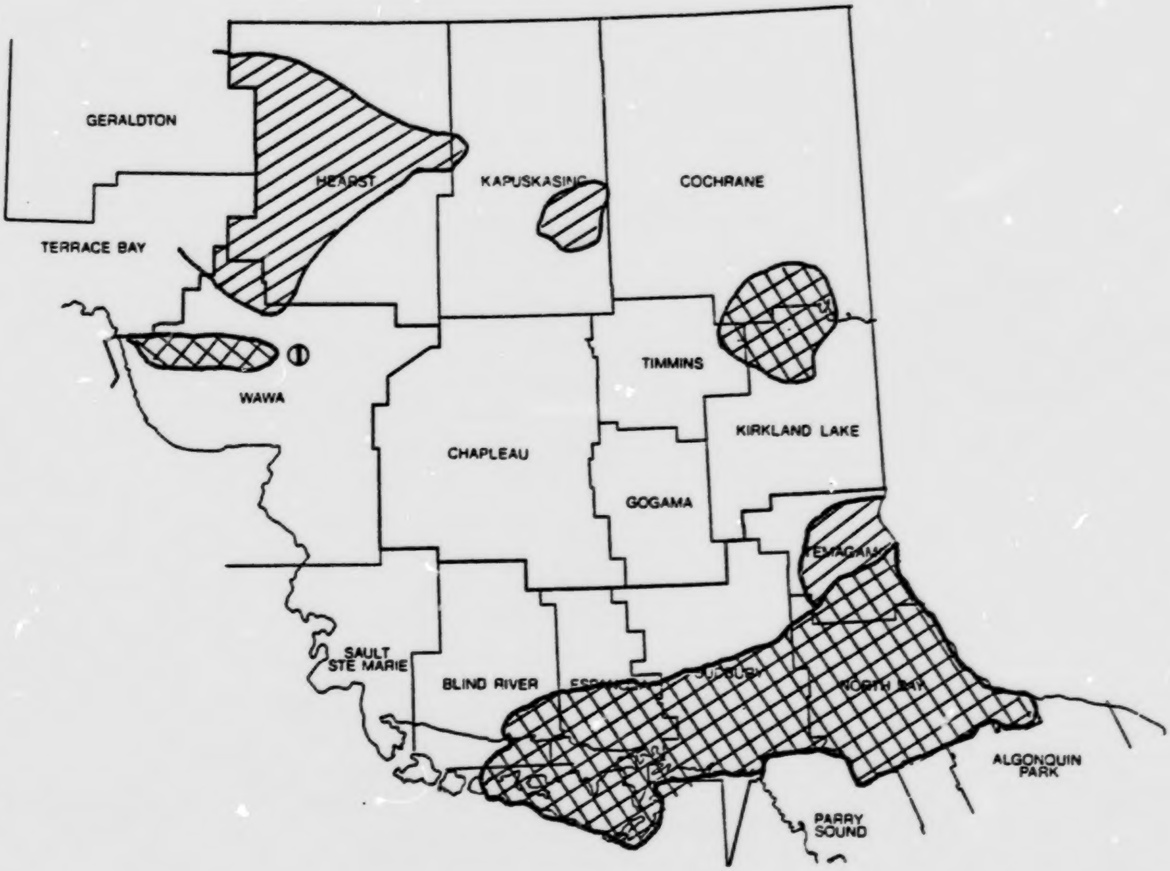
Areas within which defoliation
occurred in 1971

0 Miles 60
0 Kilometres 96

LEGEND

Moderate-to-severe defoliation ▩

NORTHEASTERN ONTARIO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TEMAGAMI
SAULT STE MARIE
BLIND RIVER
ESPANOLA
SUDBURY
NORTH BAY
ALGONQUIN PARK
PARRY SOUND

Birch Skeletonizer

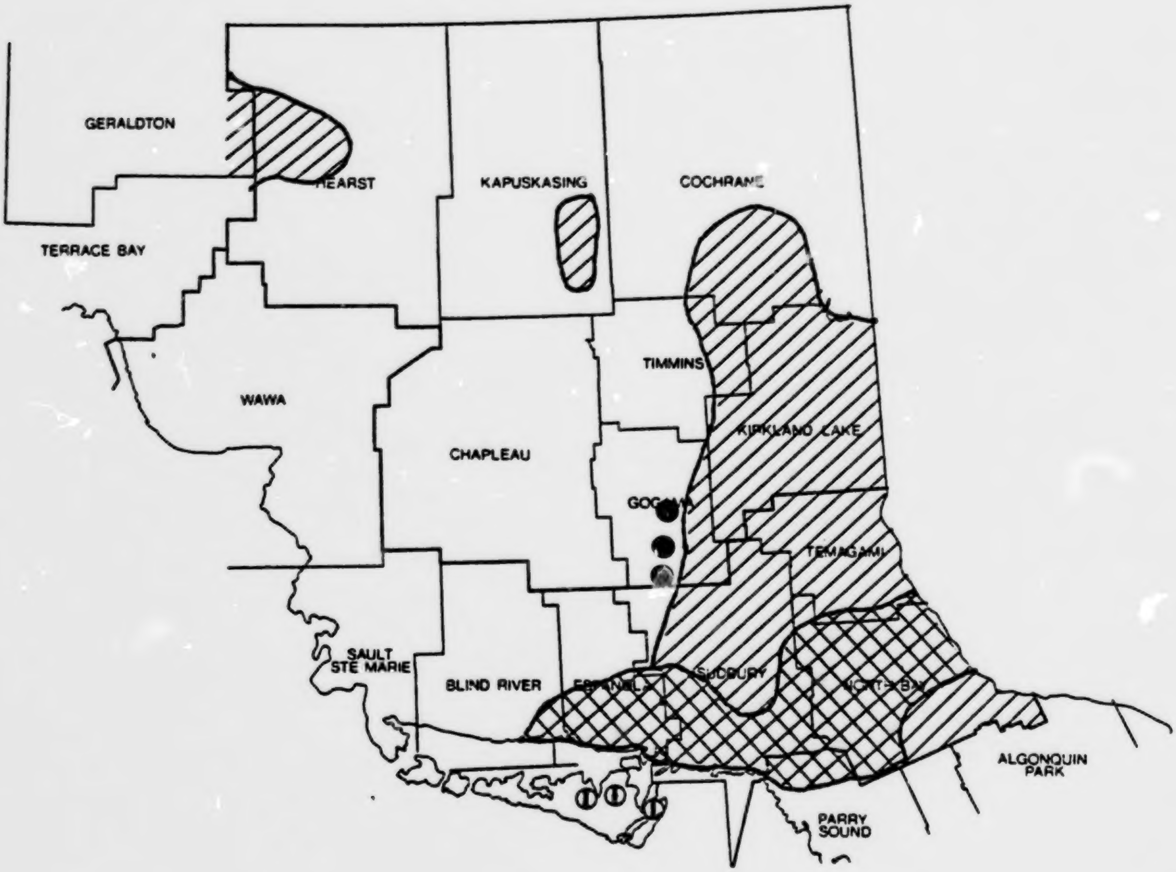
Areas within which defoliation occurred in 1972

0 Miles 60
0 Kilometres 96

LEGEND

Light defoliation ⦶ or ▨
Moderate-to-severe defoliation ▩

NORTHEASTERN ONTARIO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BLIND RIVER
ESPANOLA
SUDBURY
NORTH BAY
ALGONQUIN PARK
PARRY SOUND

Birch Skeletonizer

Areas within which defoliation occurred in 1973

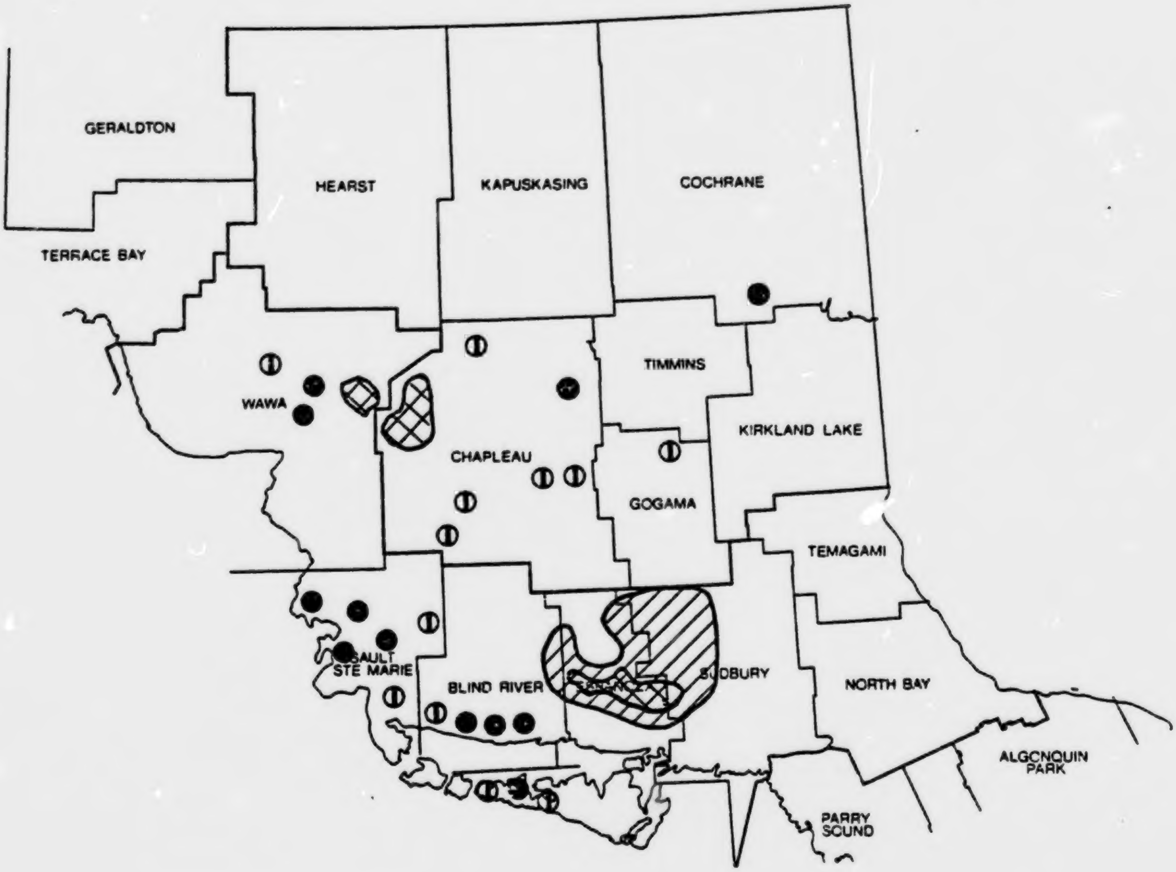
0 Miles 60
0 Kilometres 96

LEGEND

Light defoliation ◐ or ▨

Moderate-to-severe defoliation ● or ▩

NORTHEASTERN ONTARIO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SAULT STE MARIE
BLIND RIVER
SUDBURY
NORTH BAY
ALGONQUIN PARK
PARRY SOUND

Large Aspen Tortrix

Areas within which defoliation occurred in 1957

LEGEND

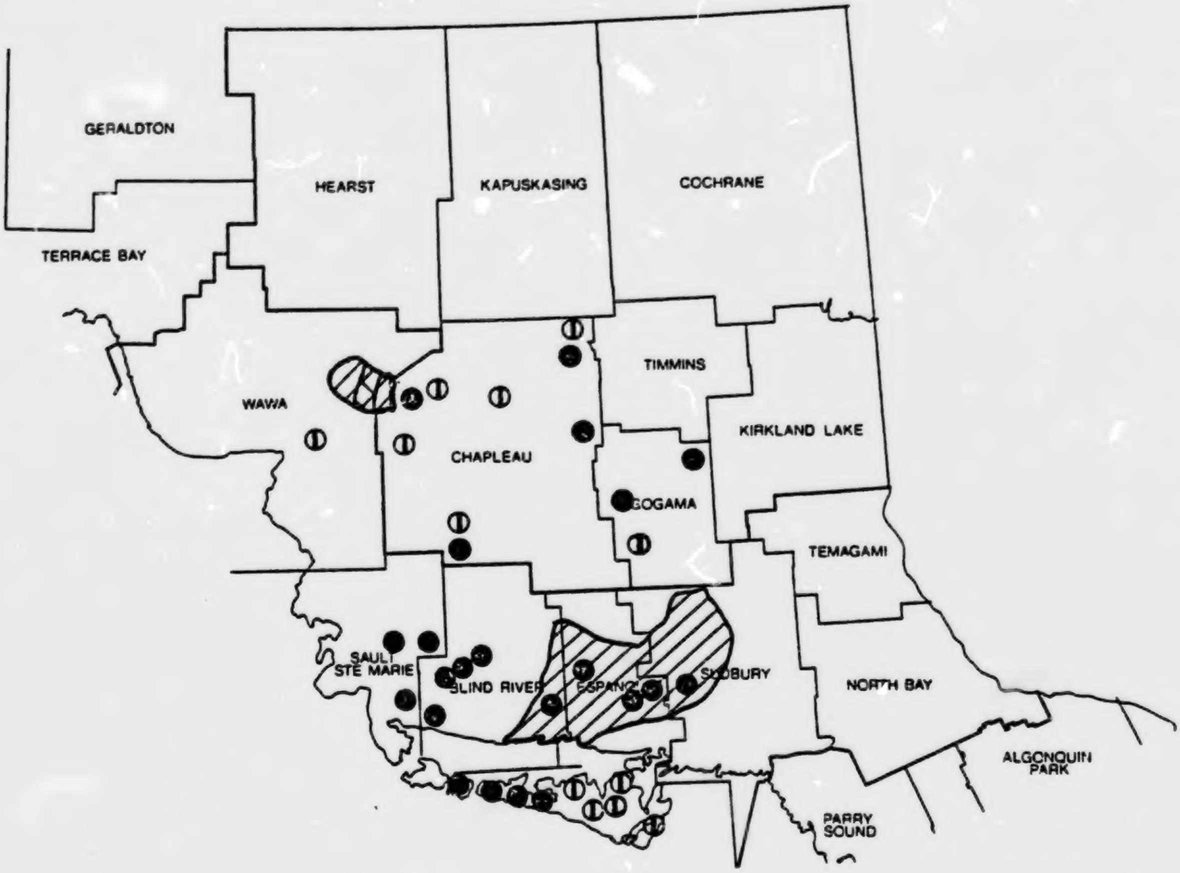
Light defoliation ◐ or ▨

Moderate-to-severe defoliation ● or ▩

0 Miles 60

0 Kilometres 96

NORTHEASTERN ONTARIO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SAULT STE MARIE
BLIND RIVER
ESPANOLA
SUDBURY
NORTH BAY
ALGONQUIN PARK
PARRY SOUND

Large Aspen Tortrix

Areas within which defoliation occurred in 1958

0 Miles 60

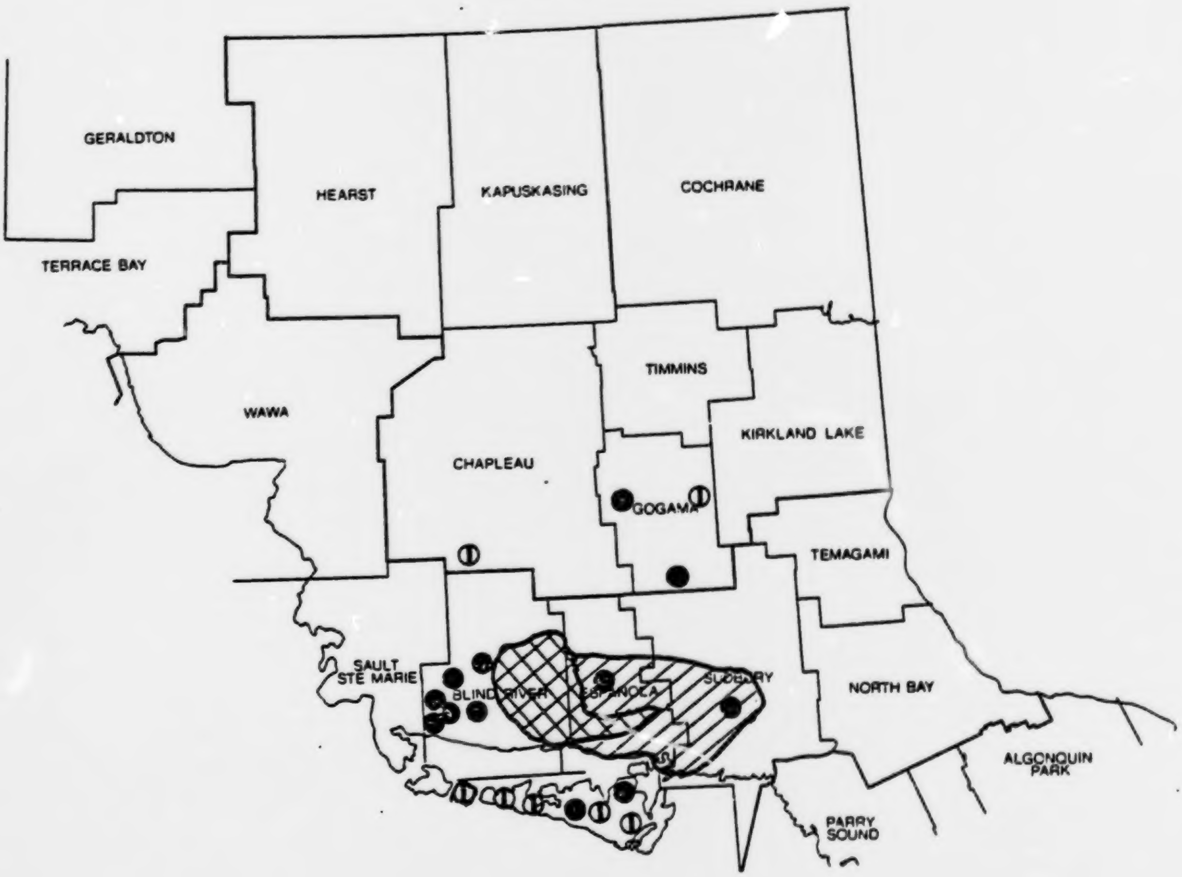
0 Kilometres 96

LEGEND

Light defoliation ◐ or ▨

Moderate-to-severe defoliation ● or ▩

NORTHEASTERN ONTARIO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ESPANOLA
SUDBURY
NORTH BAY
ALGONQUIN PARK
PARRY SOUND

Large Aspen Tortrix

Areas within which defoliation occurred in 1959

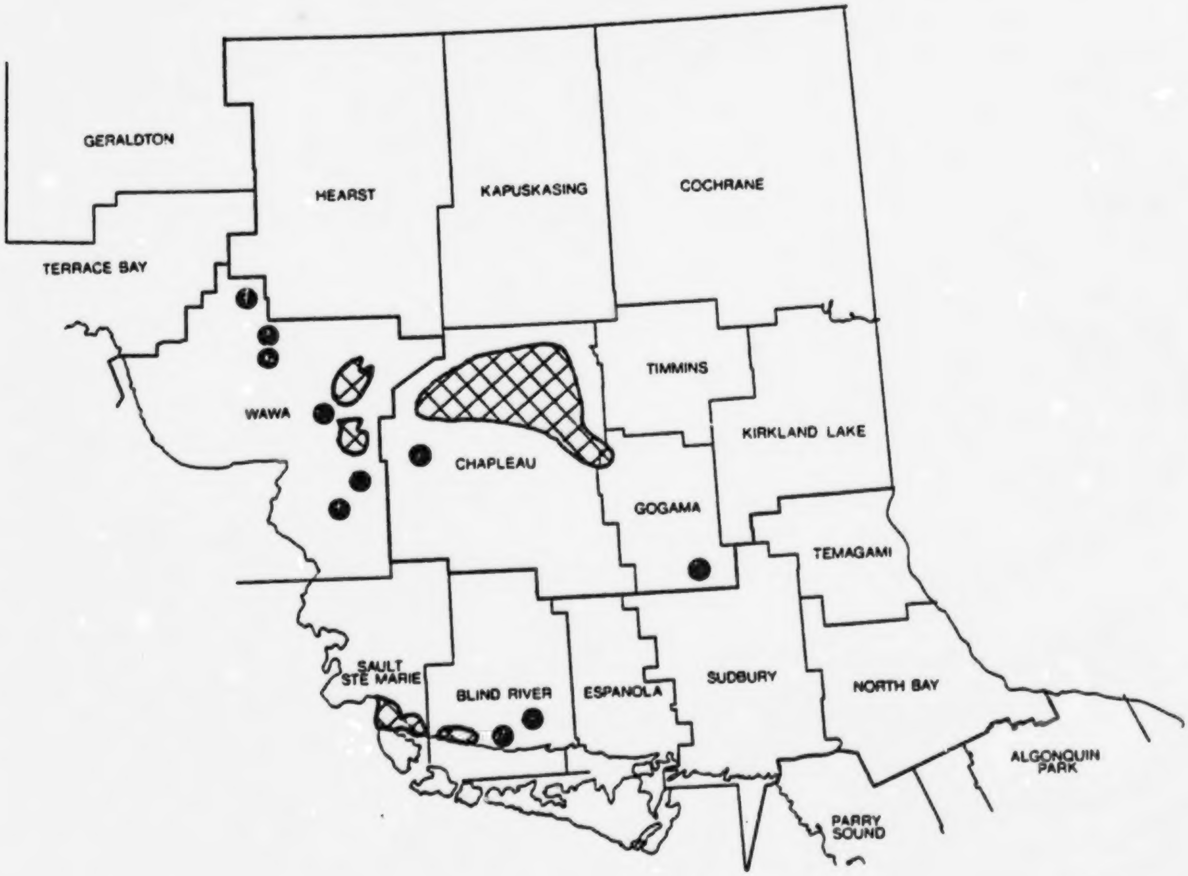
LEGEND

Light defoliation ◑ or ▨

Moderate-to-severe defoliation ● or ▩

0 Miles 60
0 Kilometres 96

NORTHEASTERN ONTARIO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BLIND RIVER
ESPANOLA
SUDBURY
NORTH BAY
ALGONQUIN PARK
PARRY SOUND

0 Miles 60
0 Kilometres 96

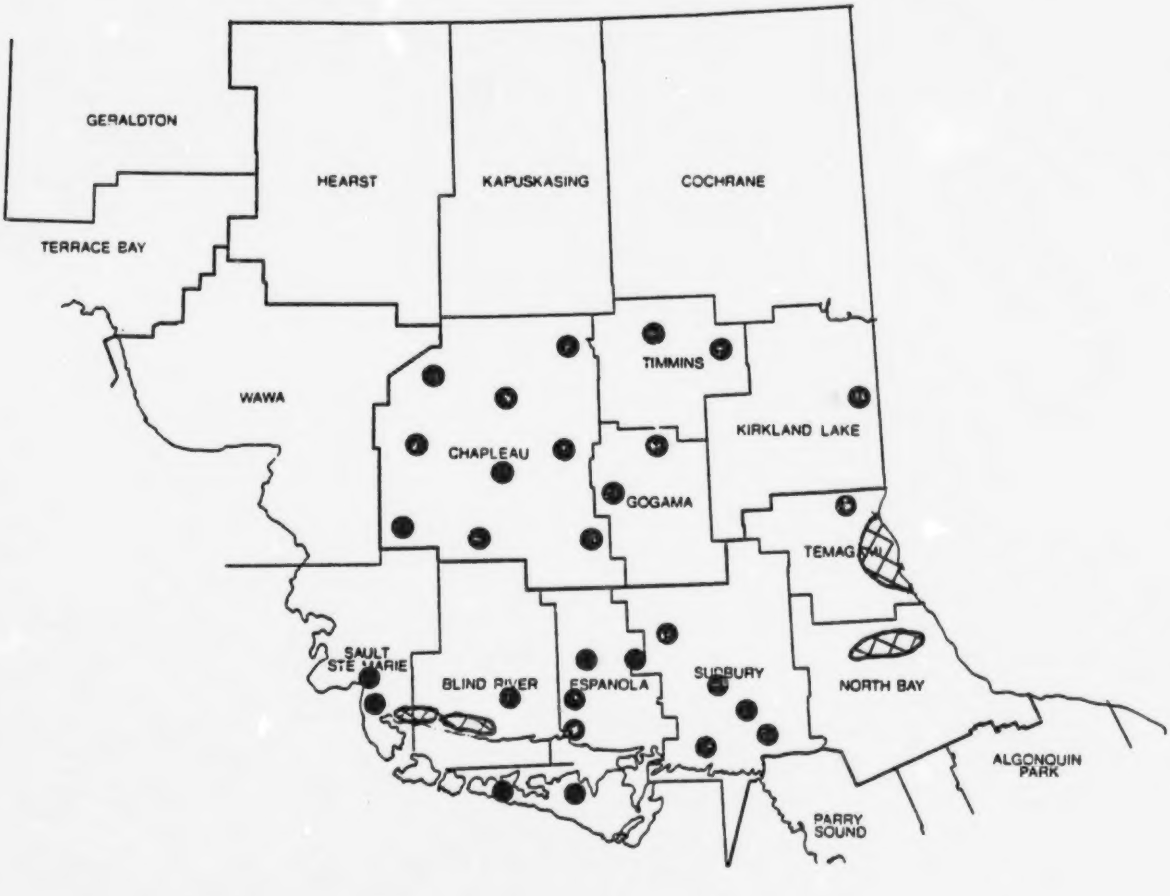
Large Aspen Tortrix

Areas within which defoliation occurred in 1970

LEGEND

Moderate-to-severe defoliation ● or ▨

NORTHEASTERN ONTARIO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ESPANOLA
SUDBURY
NORTH BAY
ALGONQUIN PARK
PARRY SOUND

Large Aspen Tortrix

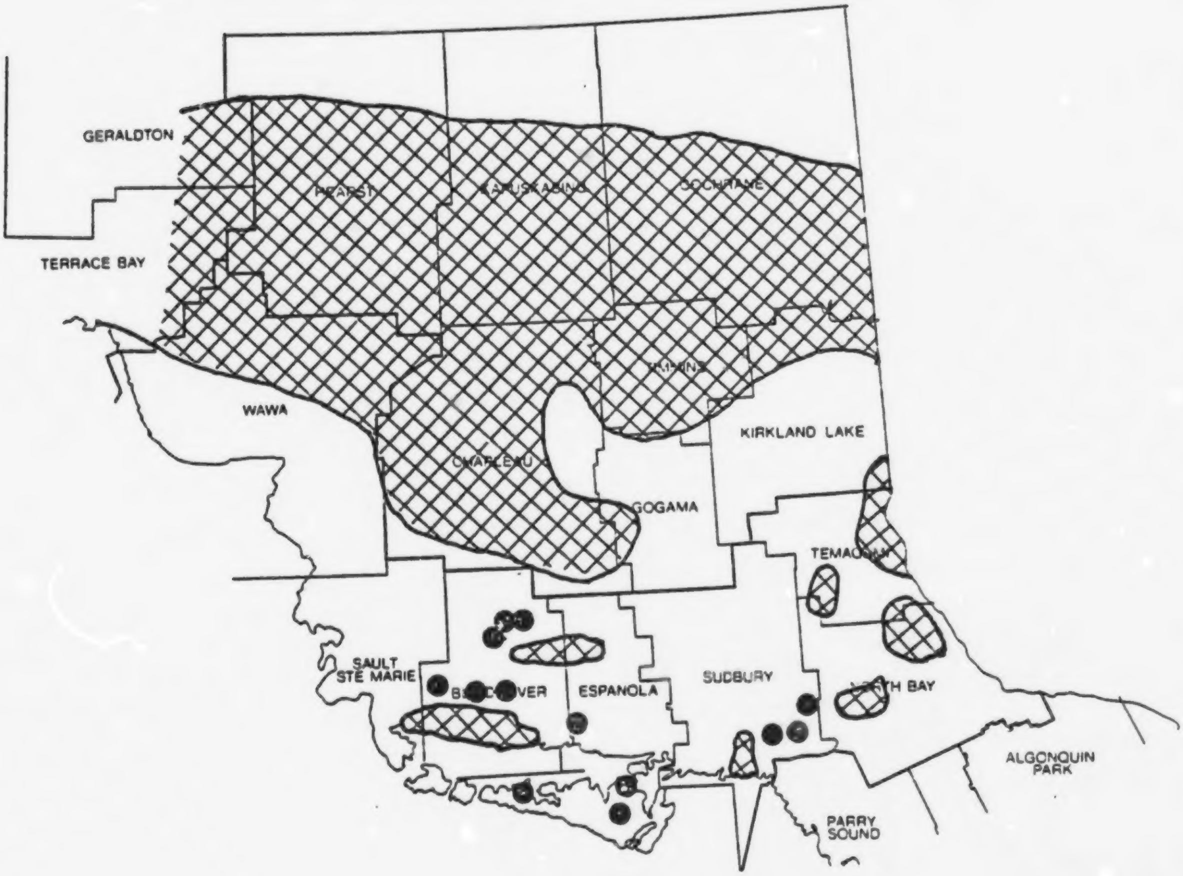
Areas within which defoliation occurred in 1971

0 Miles 60
0 Kilometres 96

LEGEND

Moderate-to-severe defoliation ● or ▨

NORTHEASTERN ONTARIO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ESPANOLA
SUDBURY
NORTH BAY
ALGONQUIN PARK
PARRY SOUND
0 Miles 60
0 Kilometres 96

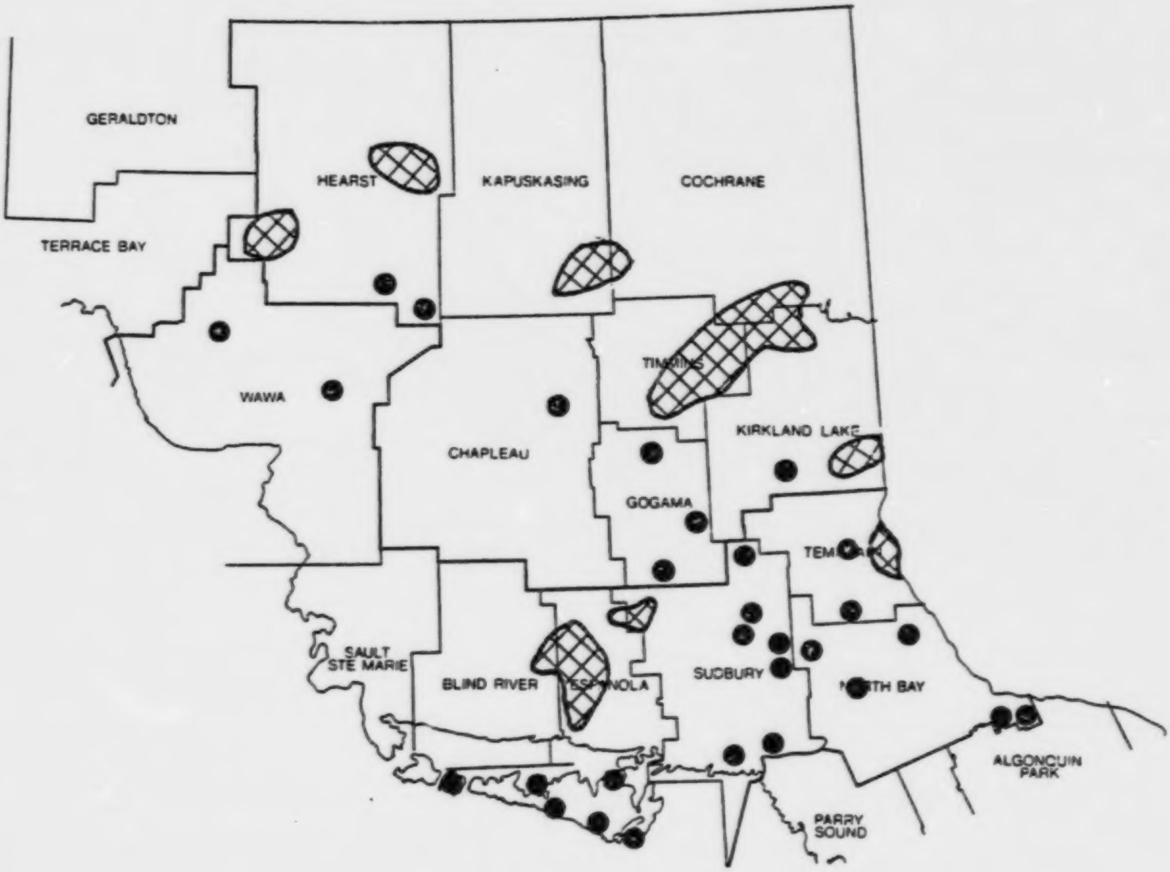
Large Aspen Tortrix

Areas within which defoliation occurred in 1972

LEGEND

Moderate-to-severe defoliation ● or ▨

NORTHEASTERN ONTARIO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ESPANOLA
SUDBURY
NORTH BAY
ALGONQUIN PARK
PARRY SOUND

Large Aspen Tortrix

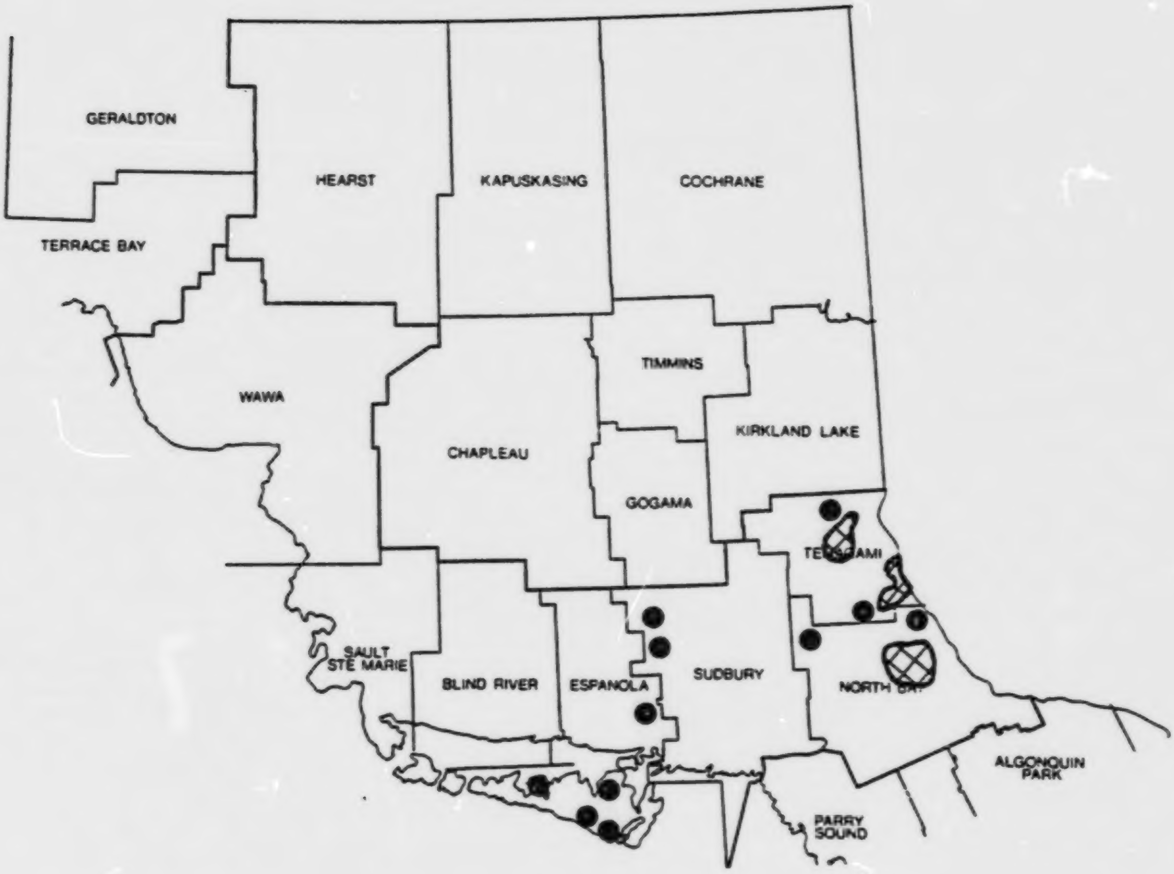
Areas within which defoliation occurred in 1973

0 Miles 60
0 Kilometres 96

LEGEND

Moderate-to-severe defoliation ● or ▨

NORTHEASTERN ONTARIO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BLIND RIVER
ESPANOLA
SUDBURY
NORTH B
ALGONQUIN PARK
PARRY SOUND
0 Miles 60
0 Kilometres 96

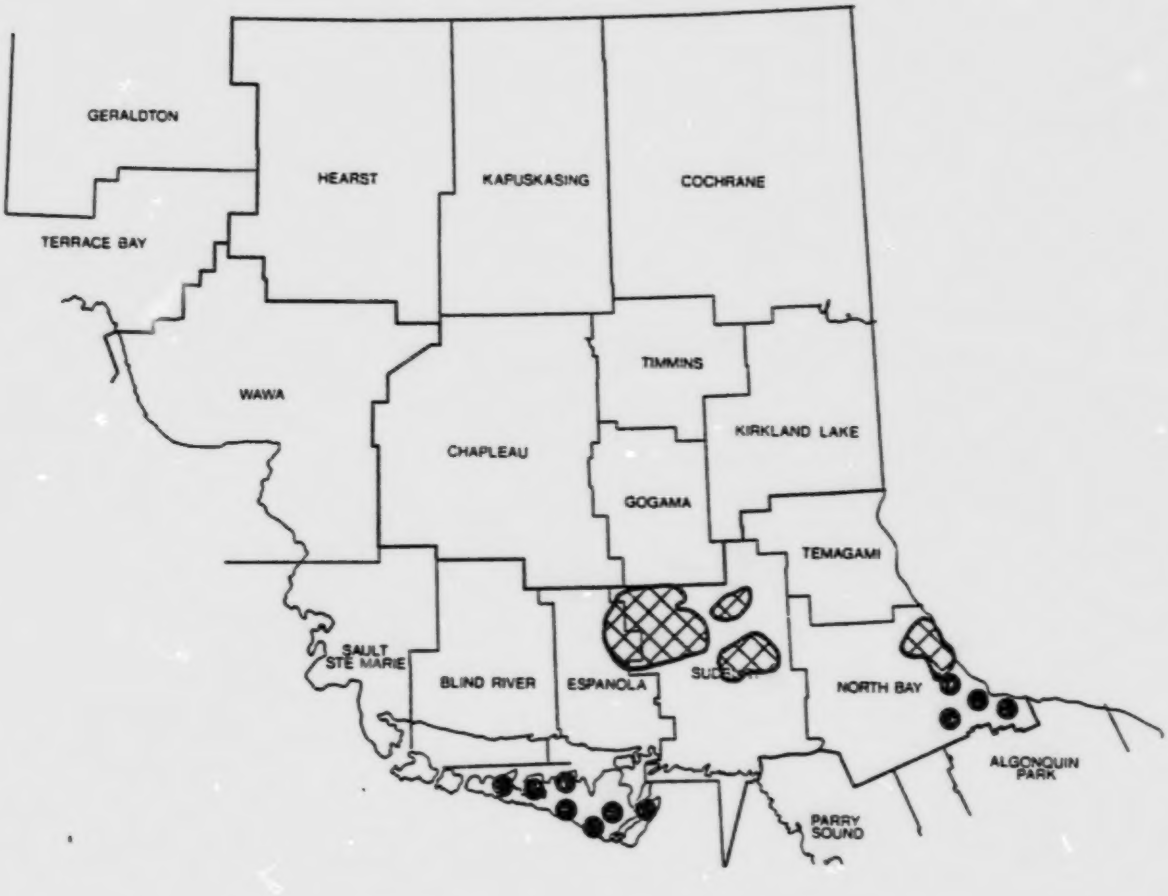
Large Aspen Tortrix

Areas within which defoliation
occurred in 1974

LEGEND

Moderate-to-severe defoliation ● or ▨

NORTHEASTERN ONTARIO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SAULT STE MARIE
BLIND RIVER
ESPANOLA
SUDBURY
NORTH BAY
ALGONQUIN PARK
PARRY SOUND
0 Miles 60
0 Kilometres 96

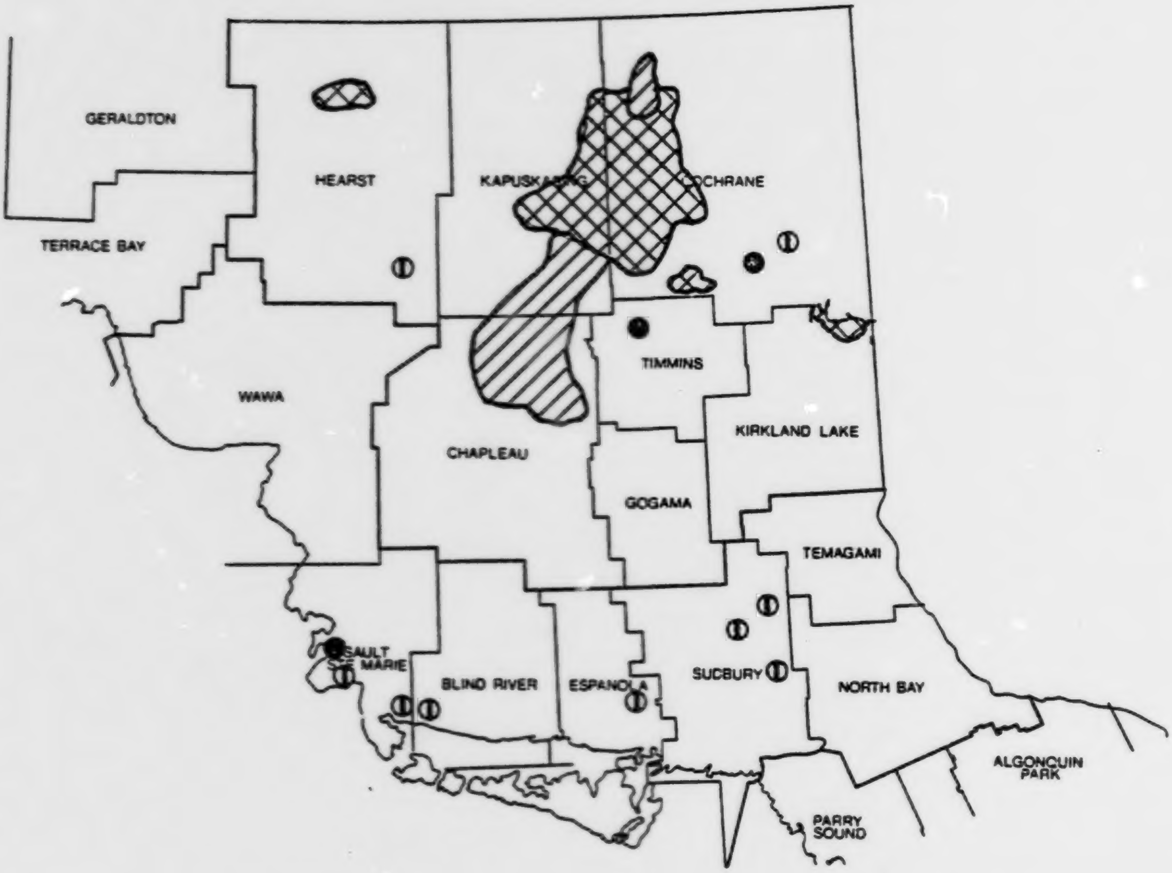
Large Aspen Tortrix

Areas within which defoliation occurred in 1975

LEGEND

Moderate-to-severe defoliation ● or ▨

NORTHEASTERN ONTARIO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SAULT STE MARIE
BLIND RIVER
ESPANOLA
SUDBURY
NORTH BAY
ALGONQUIN PARK
PARRY SOUND

Spruce Budworm

Areas within which defoliation occurred in 1950

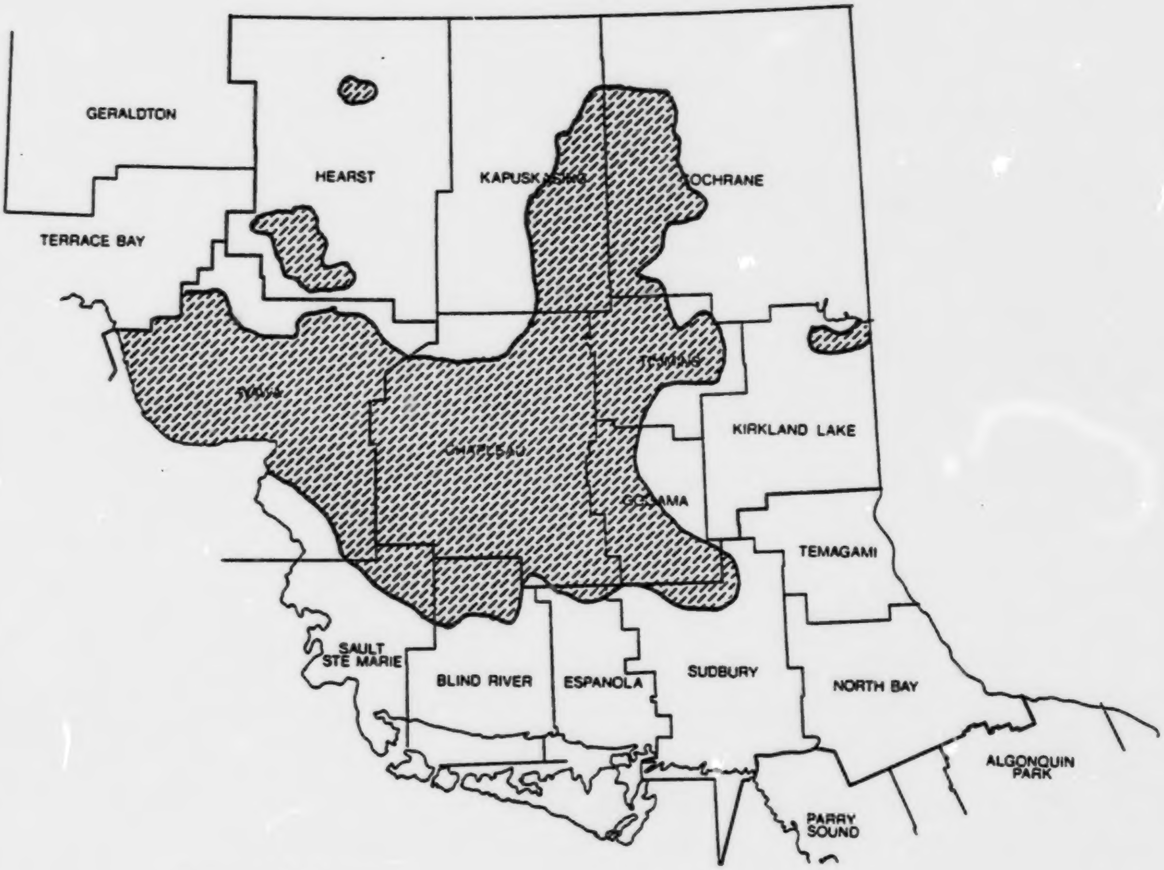
0 Miles 60
0 Kilometres 96

LEGEND

Light defoliation ⦶ or ▨

Moderate-to-severe defoliation ● or ▦

NORTHEASTERN ONTARIO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BLIND RIVER
ESPANOLA
SUDBURY
NORTH BAY
ALGONQUIN PARK
PARRY SOUND

Spruce Budworm

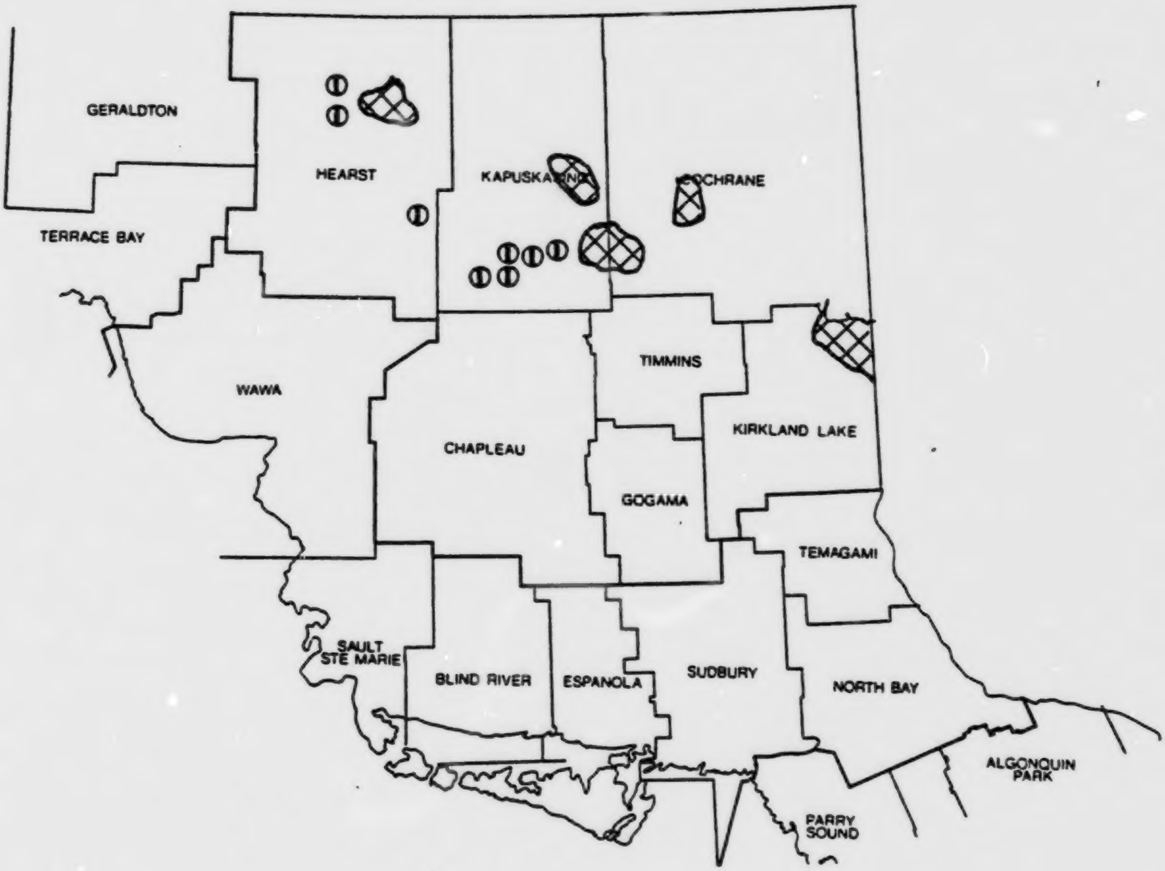
Areas within which balsam fir
whole tree and top mortality
occurred in 1950

0 Miles 60
0 Kilometres 96

LEGEND

Mortality ▨

NORTHEASTERN ONTARIO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BLIND RIVER
ESPANOLA
SUDBURY
NORTH BAY
ALGONQUIN PARK
PARRY SOUND
0 Miles 60
0 Kilometres 96

Spruce Budworm

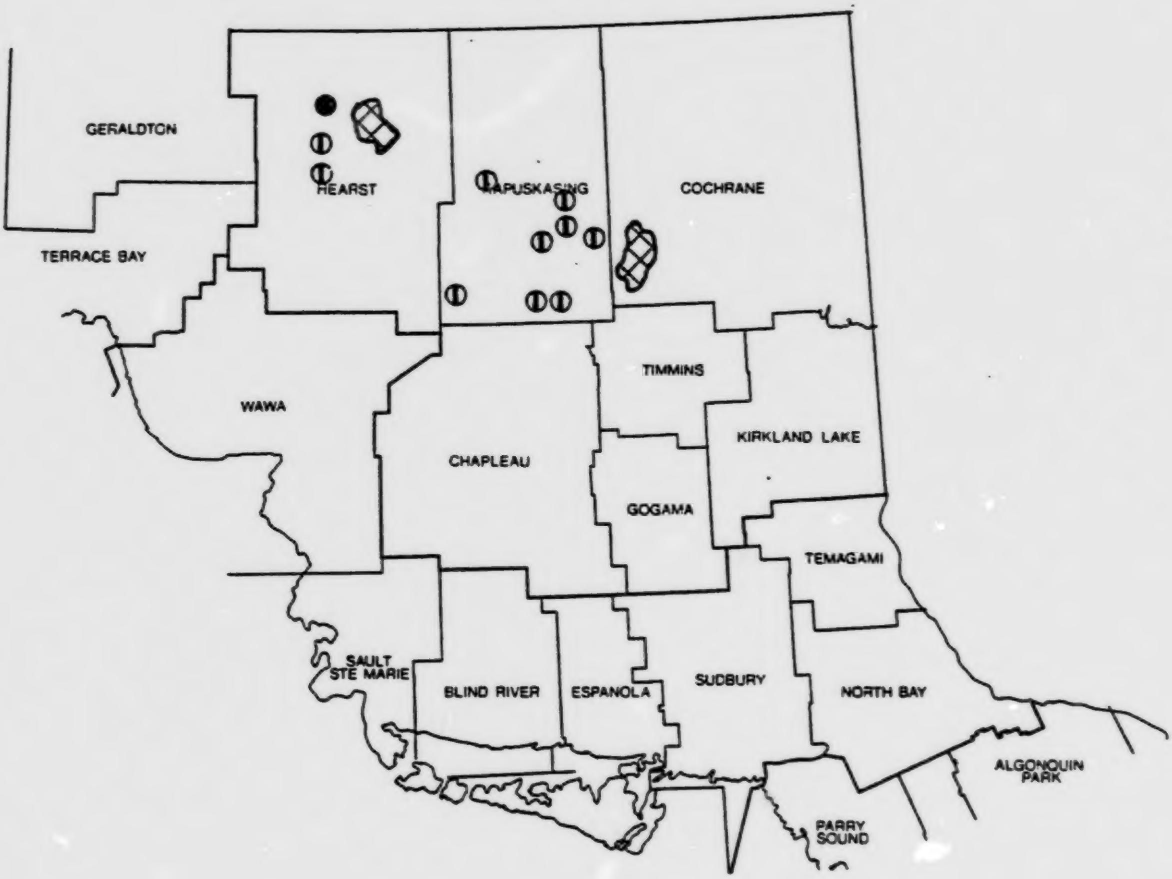
Areas within which defoliation
occurred in 1951

LEGEND

Light defoliation ⦶

Moderate-to-severe defoliation ▨

NORTHEASTERN ONTARIO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ESPANOLA
SUDBURY
NORTH BAY
ALGONQUIN PARK
PARRY SOUND
0 Miles 60
0 Kilometres 96

Spruce Budworm

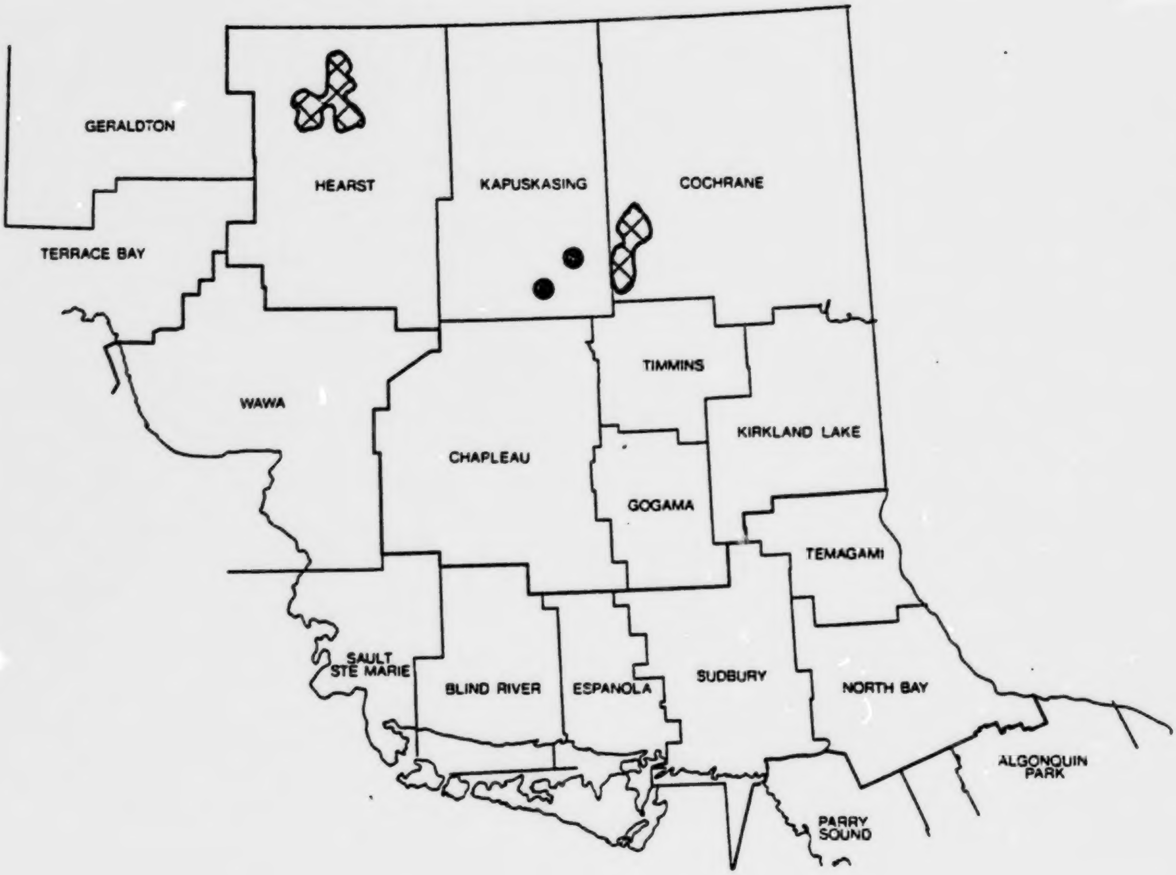
Areas within which defoliation occurred in 1952

LEGEND

Light defoliation ⦶

Moderate-to-severe defoliation ● or ▩

NORTHEASTERN ONTARIO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SUDBURY
NORTH BAY
ALGONQUIN PARK
PARRY SOUND

Spruce Budworm

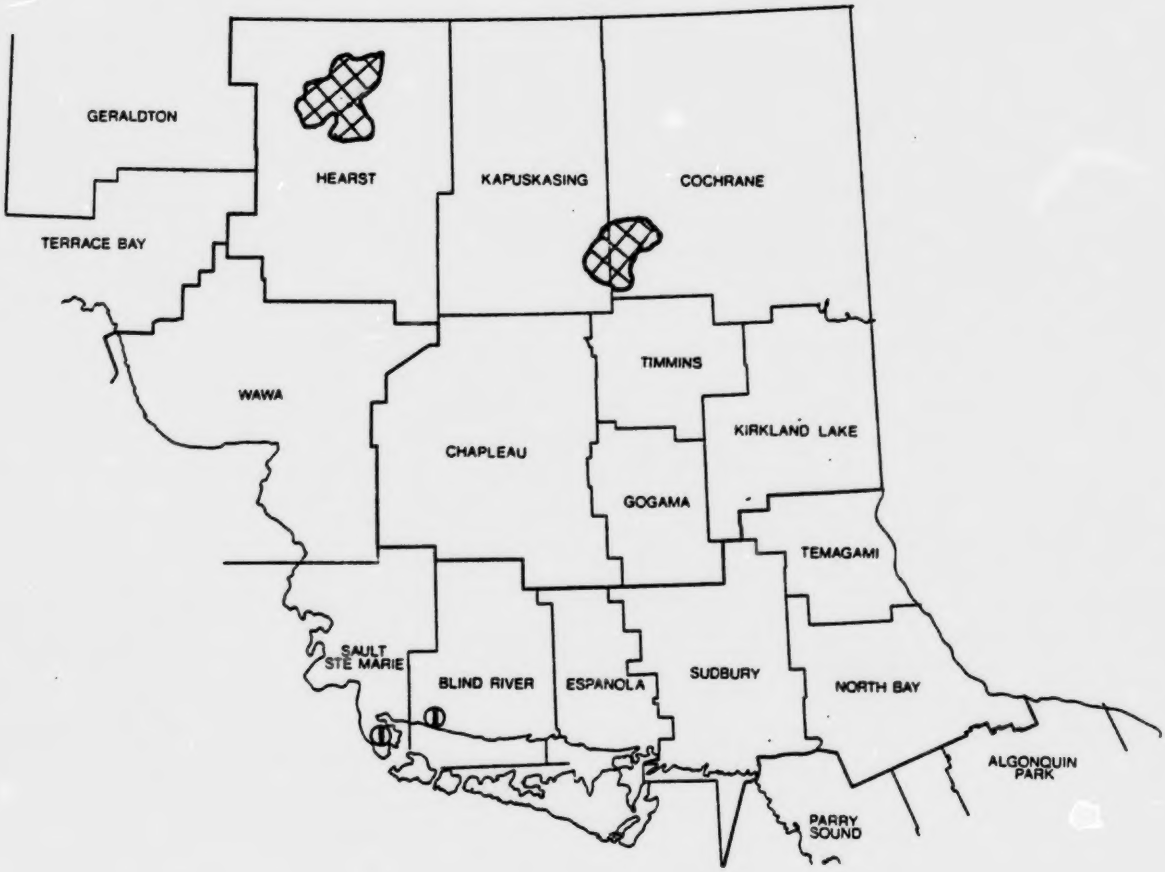
Areas within which defoliation
occurred in 1953

LEGEND

Moderate-to-severe defoliation ● or ▨

0 Miles 60
0 Kilometres 96

NORTHEASTERN ONTARIO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BLIND RIVER
ESPANOLA
SUDBURY
NORTH BAY
ALGONQUIN PARK
PARRY SOUND

0 Miles 60
0 Kilometres 96

Spruce Budworm

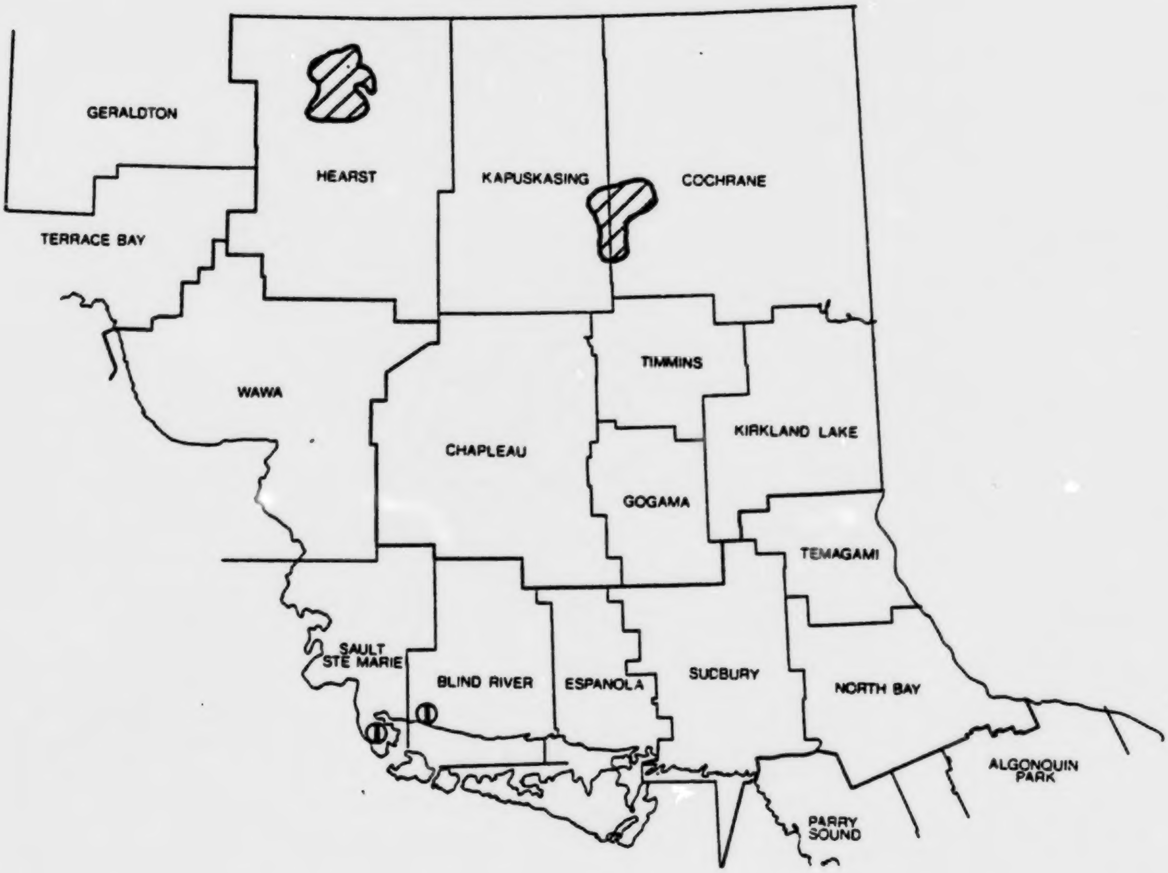
Areas within which defoliation occurred in 1954

LEGEND

Light defoliation ⦶

Moderate-to-severe defoliation ▩

NORTHEASTERN ONTARIO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SAULT STE MARIE
BLIND RIVER
ESPANOLA
SUDBURY
NORTH BAY
ALGONQUIN PARK
PARRY SOUND
0 Miles 60
0 Kilometres 96

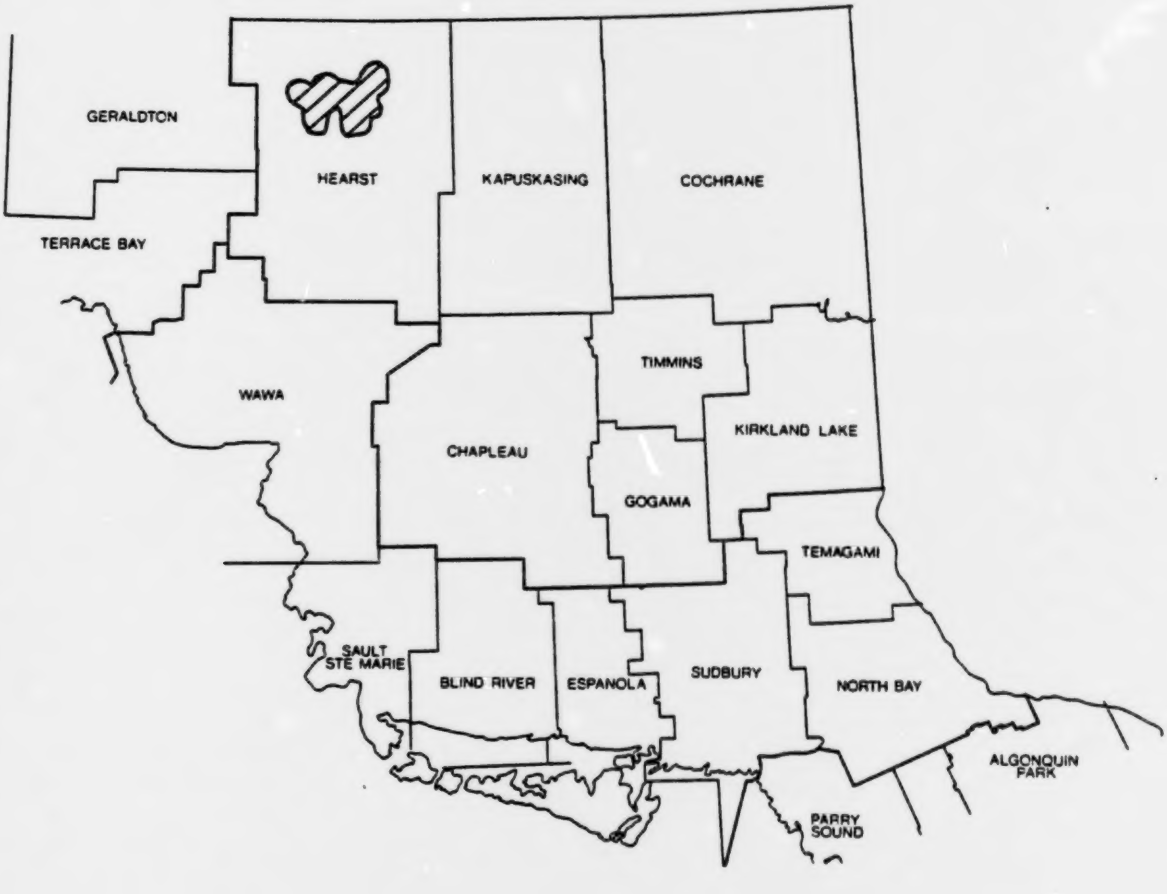
Spruce Budworm

Areas within which defoliation occurred in 1955

LEGEND

Light defoliation ⦶ or ▨

NORTHEASTERN ONTARIO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BLIND RIVER
ESPANOLA
SUDBURY
NORTH BAY
ALGONQUIN PARK
PARRY SOUND
0 Miles 60
0 Kilometres 96

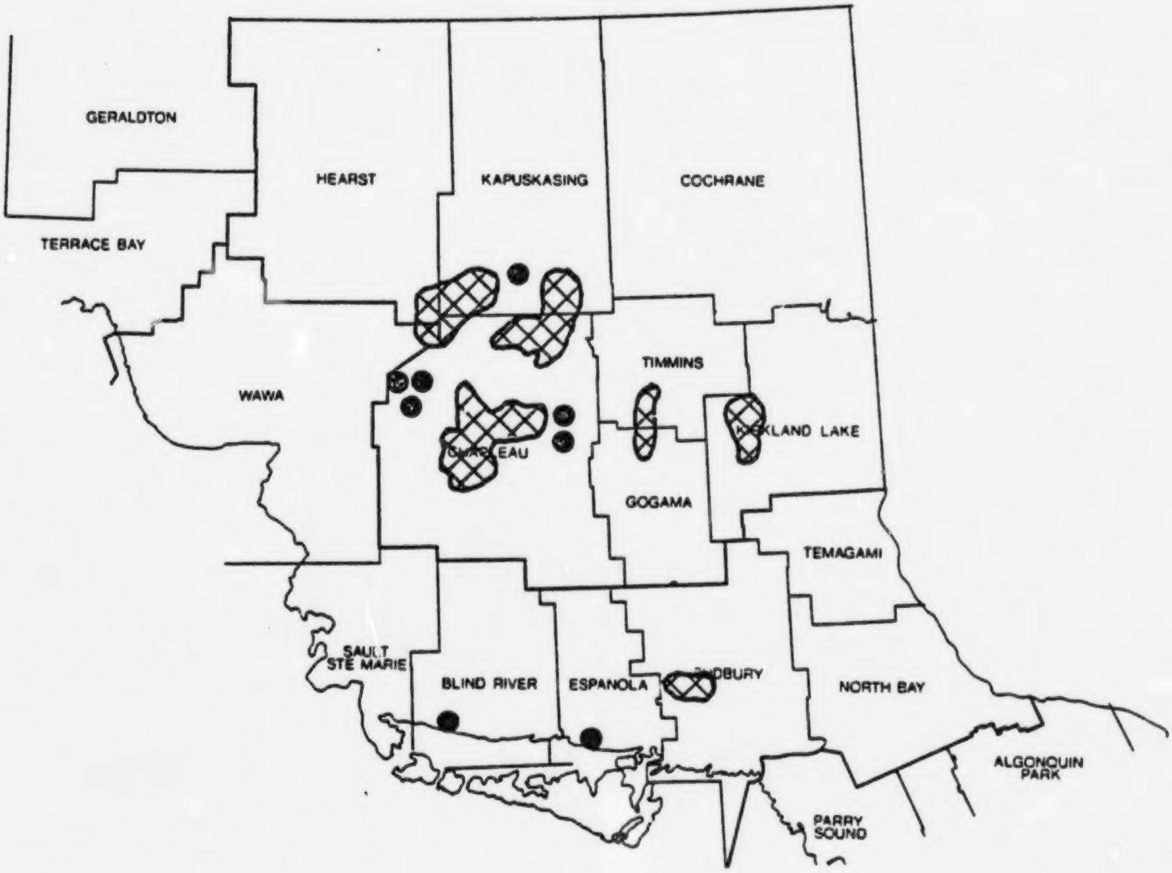
Spruce Budworm

Areas within which defoliation occurred in 1956

LEGEND

Light defoliation ▨

NORTHEASTERN ONTARIO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SAULT STE MARIE
BLIND RIVER
ESPANOLA
SUDBURY
NORTH BAY
ALGONQUIN PARK
PARRY SOUND

0 Miles 60
0 Kilometres 96

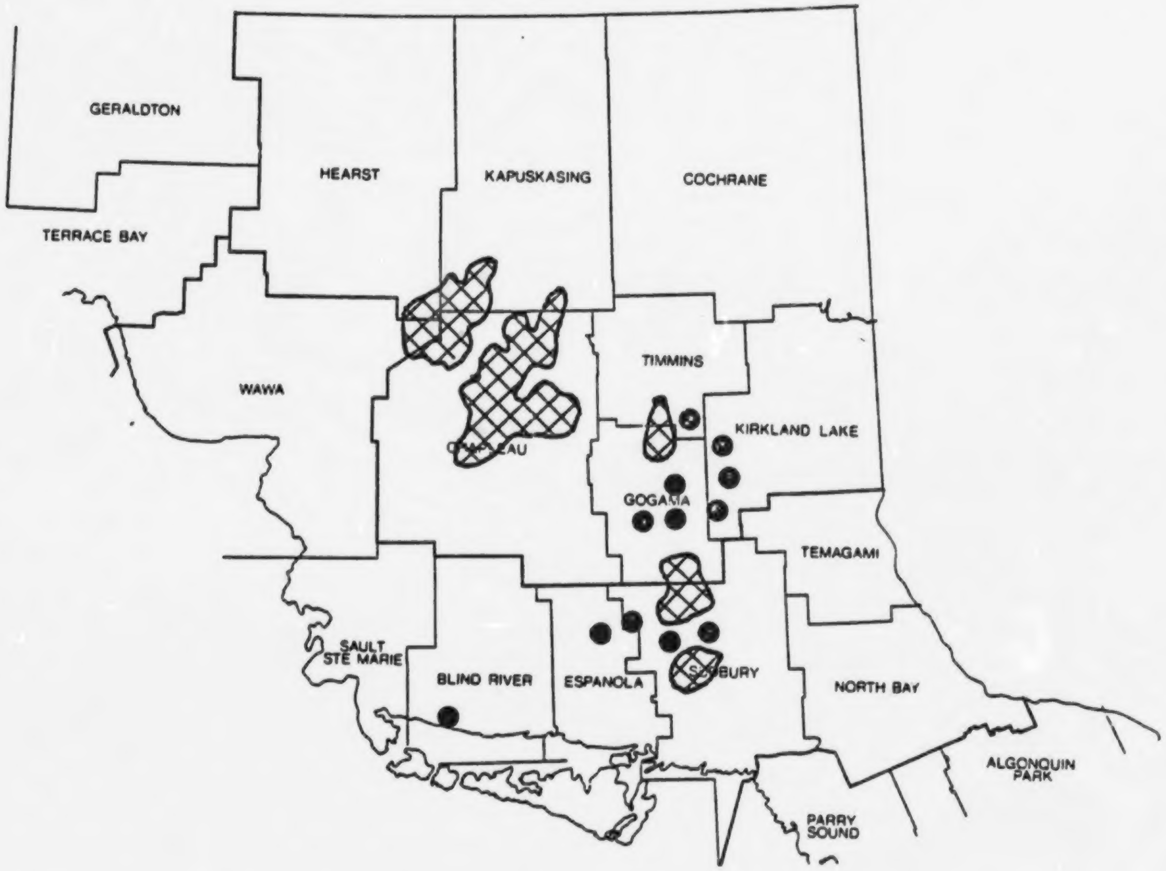
Spruce Budworm

Areas within which defoliation occurred in 1968

LEGEND

Moderate-to-severe defoliation ● or ▨

NORTHEASTERN ONTARIO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SAULT STE MARIE
BLIND RIVER
ESPANOLA
SUDBURY
NORTH BAY
ALGONQUIN PARK
PARRY SOUND
0 Miles 60
0 Kilometres 96

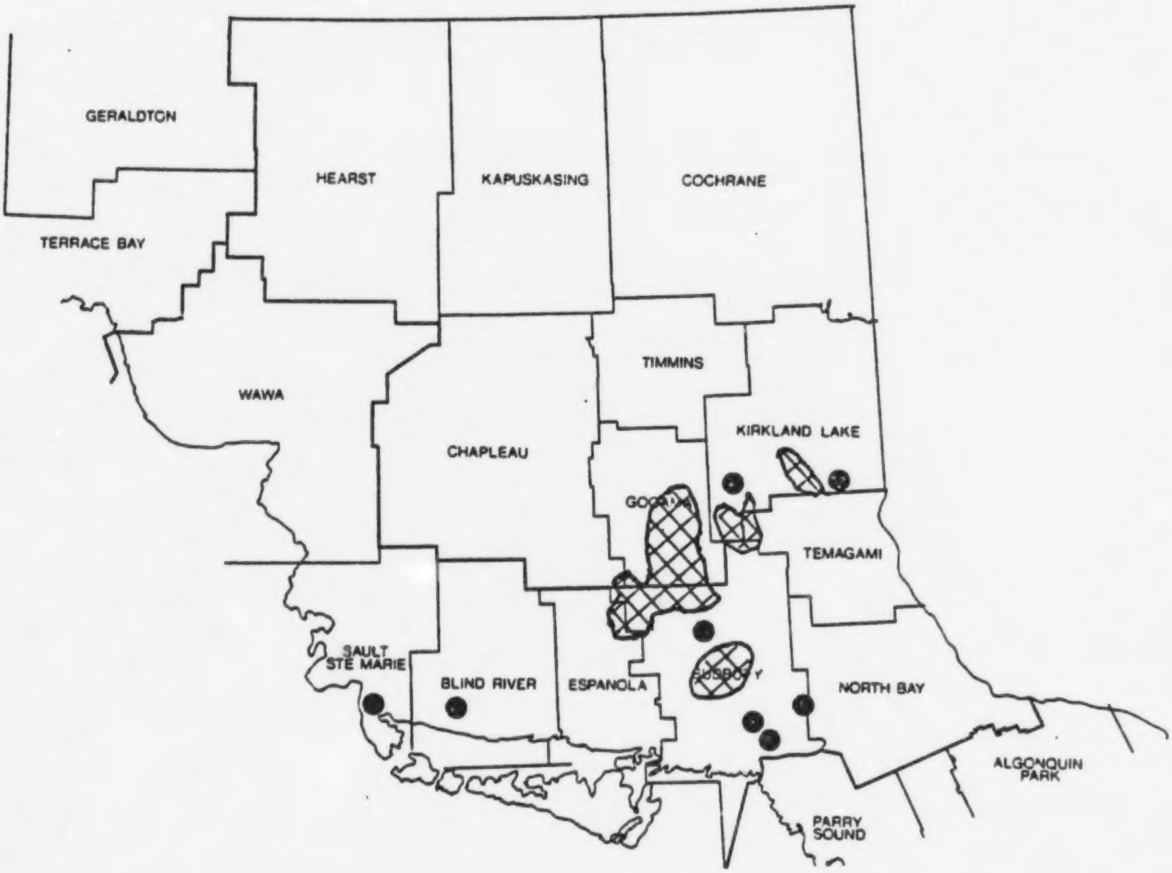
Spruce Budworm

Areas within which defoliation occurred in 1969

LEGEND

Moderate-to-severe defoliation ● or ▨

NORTHEASTERN ONTARIO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SAULT STE MARIE
BLIND RIVER
ESPANOLA
SUDBURY
NORTH BAY
ALGONQUIN PARK
PARRY SOUND
0 Miles 60
0 Kilometres 96

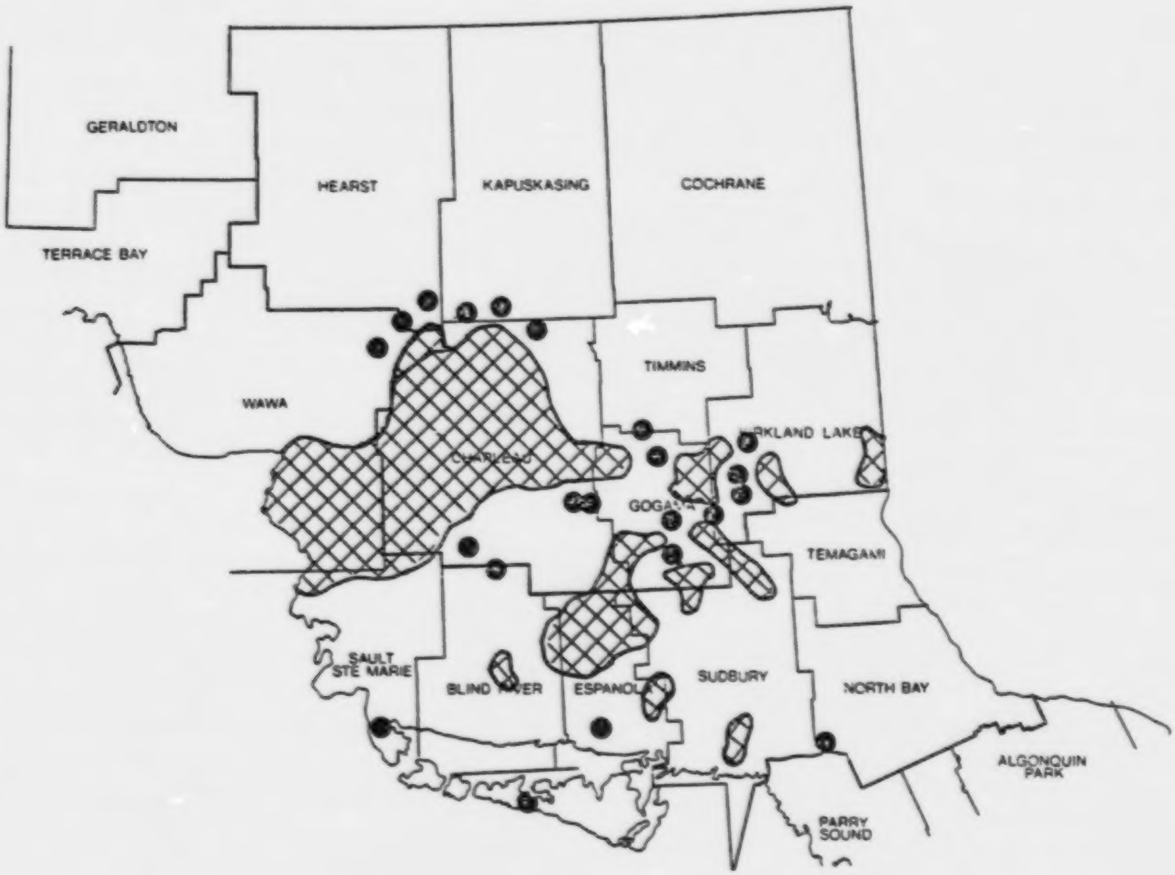
Spruce Budworm

Areas within which defoliation occurred in 1970

LEGEND

Moderate-to-severe defoliation ● or ▨

NORTHEASTERN ONTARIO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TEMAGAMI
SAULT STE MARIE
BLIND RIVER
ESPANOLA
SUDBURY
NORTH BAY
ALGONQUIN PARK
PARRY SOUND

0 Miles 60

0 Kilometres 96

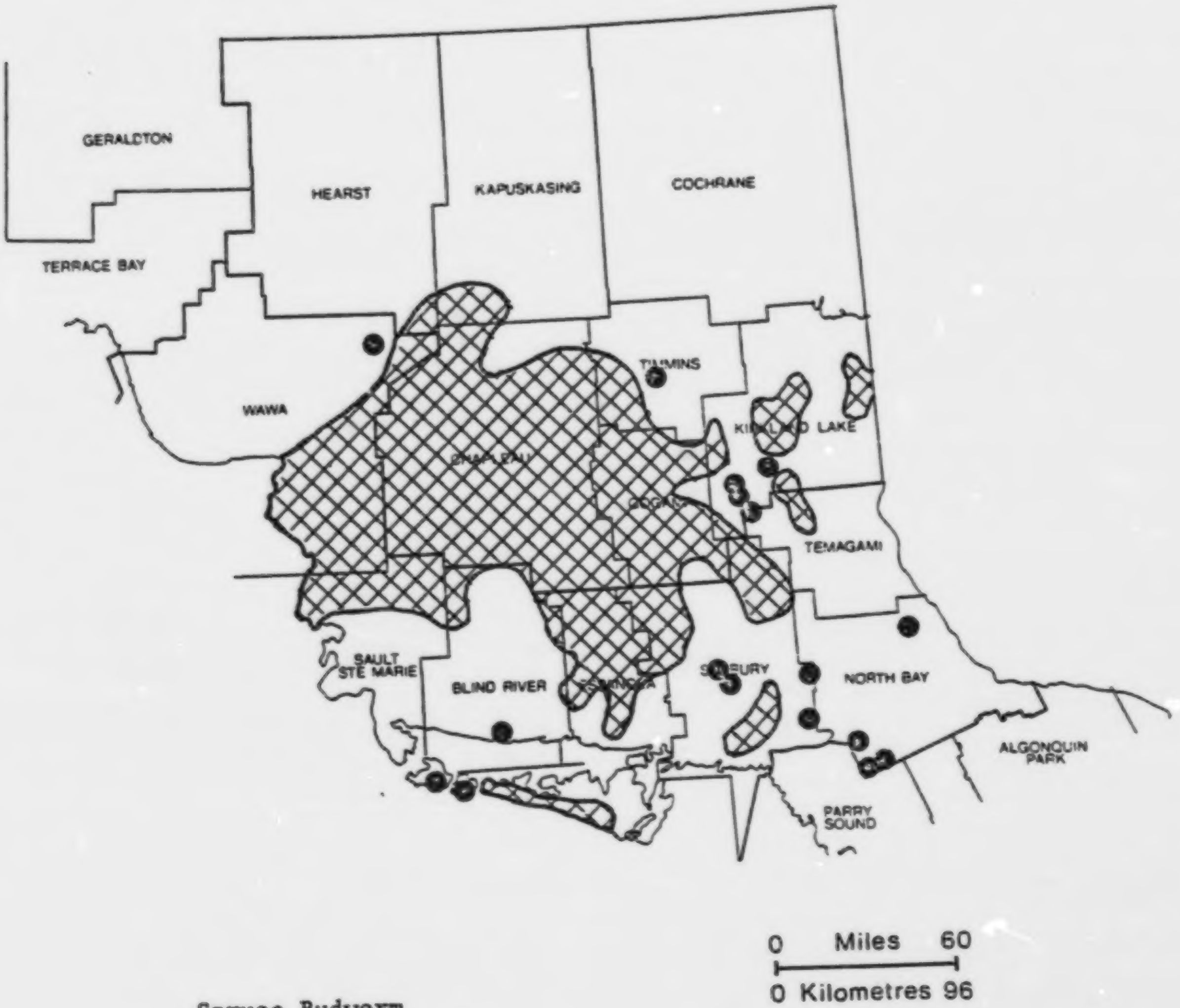
Spruce Budworm

Areas within which defoliation occurred in 1971

LEGEND

Moderate-to-severe defoliation ● or ▨

NORTHEASTERN ONTARIO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BLIND RIVER
ESPANOLA
SUDBURY
NORTH BAY
ALGONQUIN PARK
PARRY SOUND
0 Miles 60
0 Kilometres 96

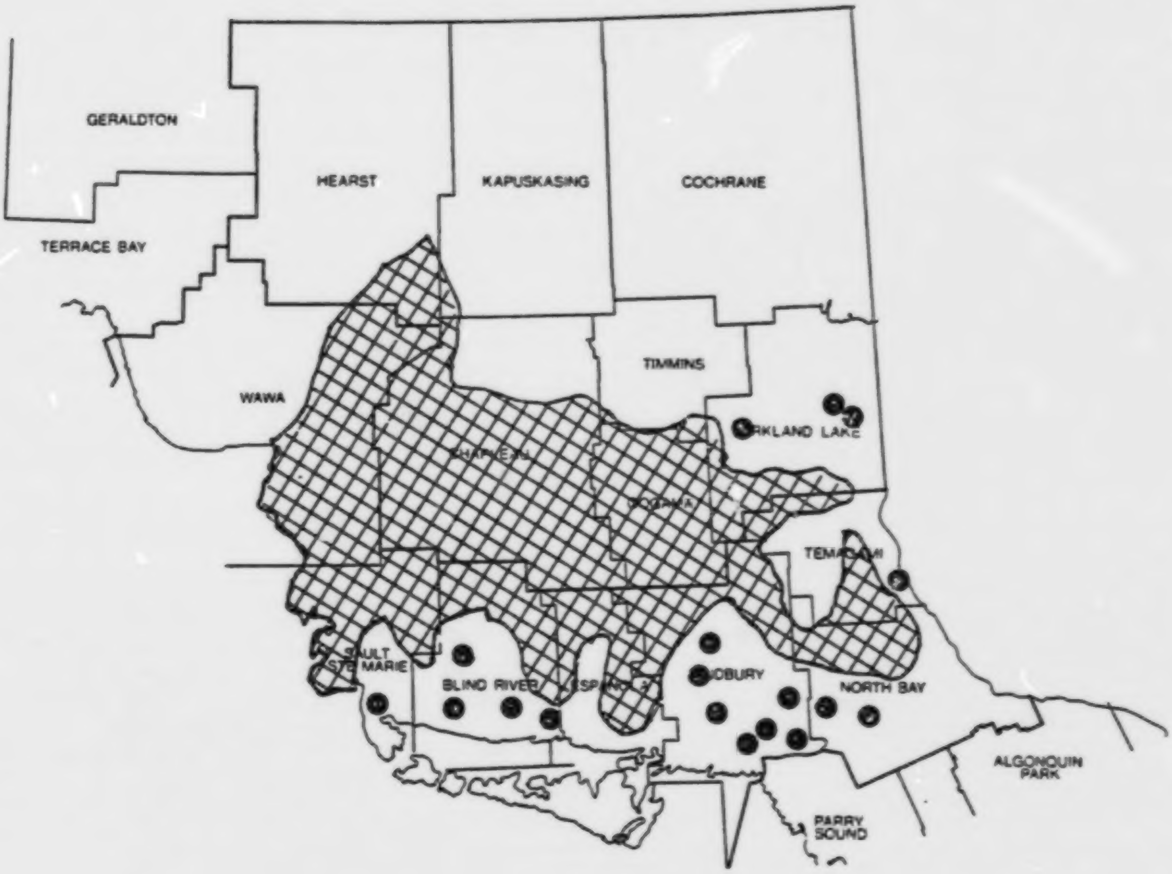
Spruce Budworm

Areas within which defoliation occurred in 1972

LEGEND

Moderate-to-severe defoliation ● or ▨

NORTHEASTERN ONTARIO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BLIND RIVER
ESPANOLA
SUDBURY
NORTH BAY
ALGONQUIN PARK
PARRY SOUND

0 Miles 60
0 Kilometres 96

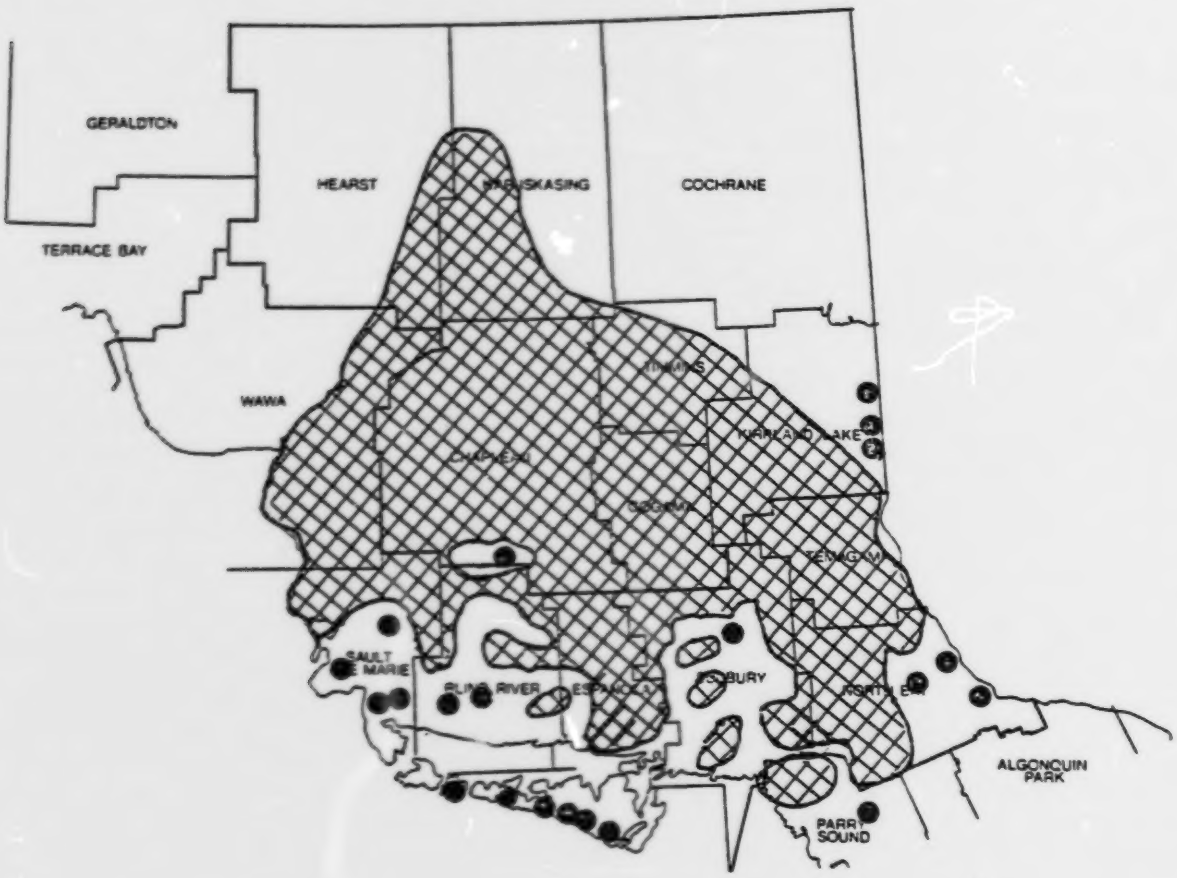
Spruce Budworm

Areas within which defoliation
occurred in 1973

LEGEND

Moderate-to-severe defoliation ● or ▨

NORTHEASTERN ONTARIO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SAULT STE MARIE
BLIND RIVER
ESPANOLA
SUDBURY
NORTH BAY
ALGONQUIN PARK
PARRY SOUND

Spruce Budworm

0 Miles 60

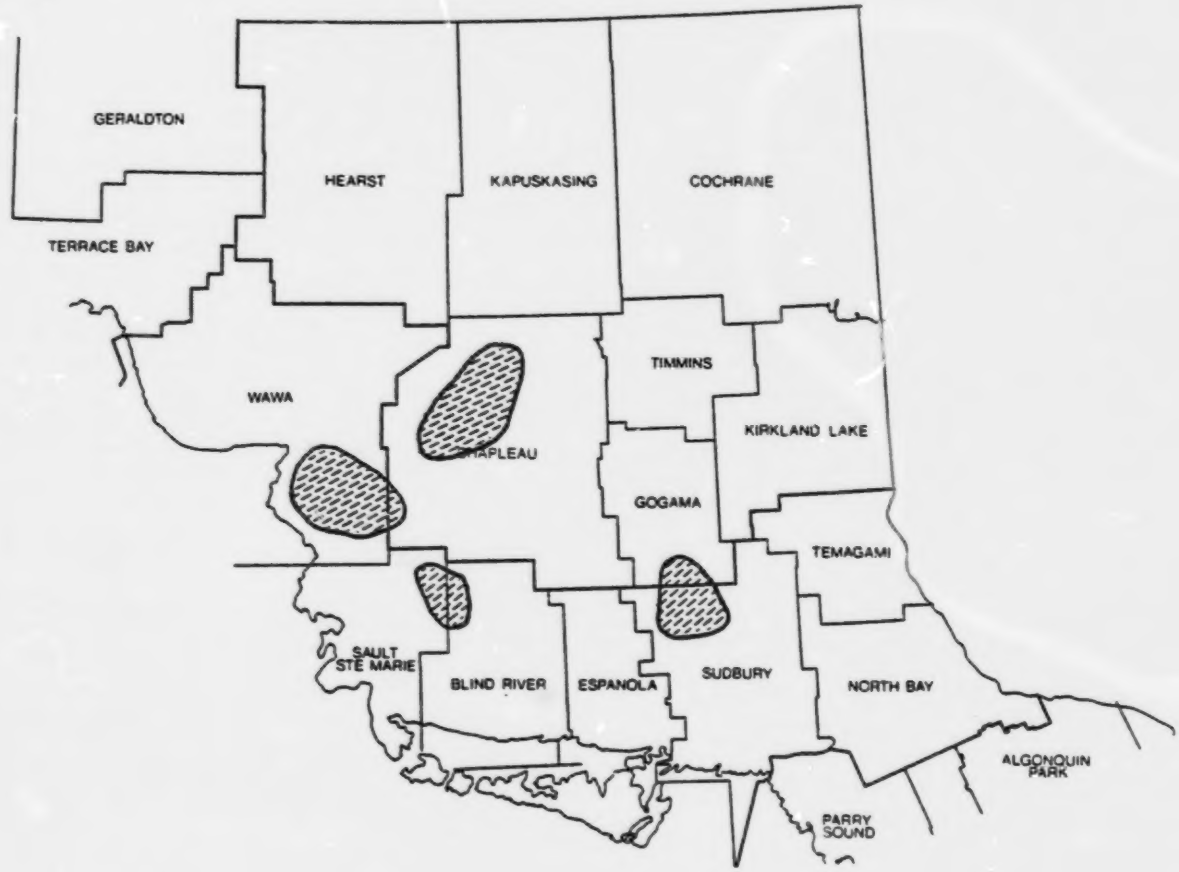
0 Kilometres 96

Areas within which defoliation occurred in 1974

LEGEND

Moderate-to-severe defoliation ● or ▨

NORTHEASTERN ONTARIO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SAULT STE MARIE
BLIND RIVER
ESPANOLA
SUDBURY
NORTH BAY
ALGONQUIN PARK
PARRY SOUND
0 Miles 60
0 Kilometres 96

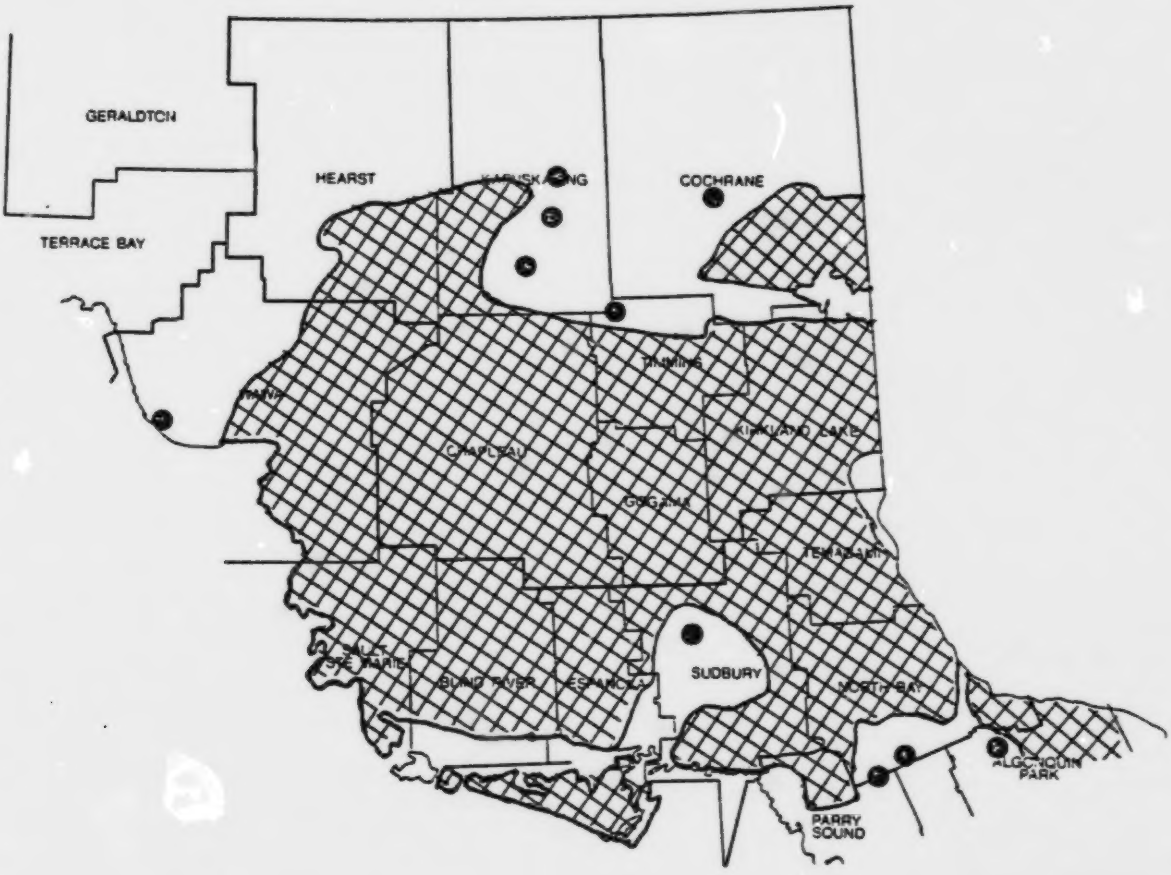
Spruce Budworm

Areas within which balsam fir whole tree and top mortality occurred in 1974

LEGEND

Mortality ▨

NORTHEASTERN ONTARIO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ESPANOLA
SUDBURY
NORTH BAY
ALGONQUIN PARK
PARRY SOUND
0 Miles 60
0 Kilometres 96

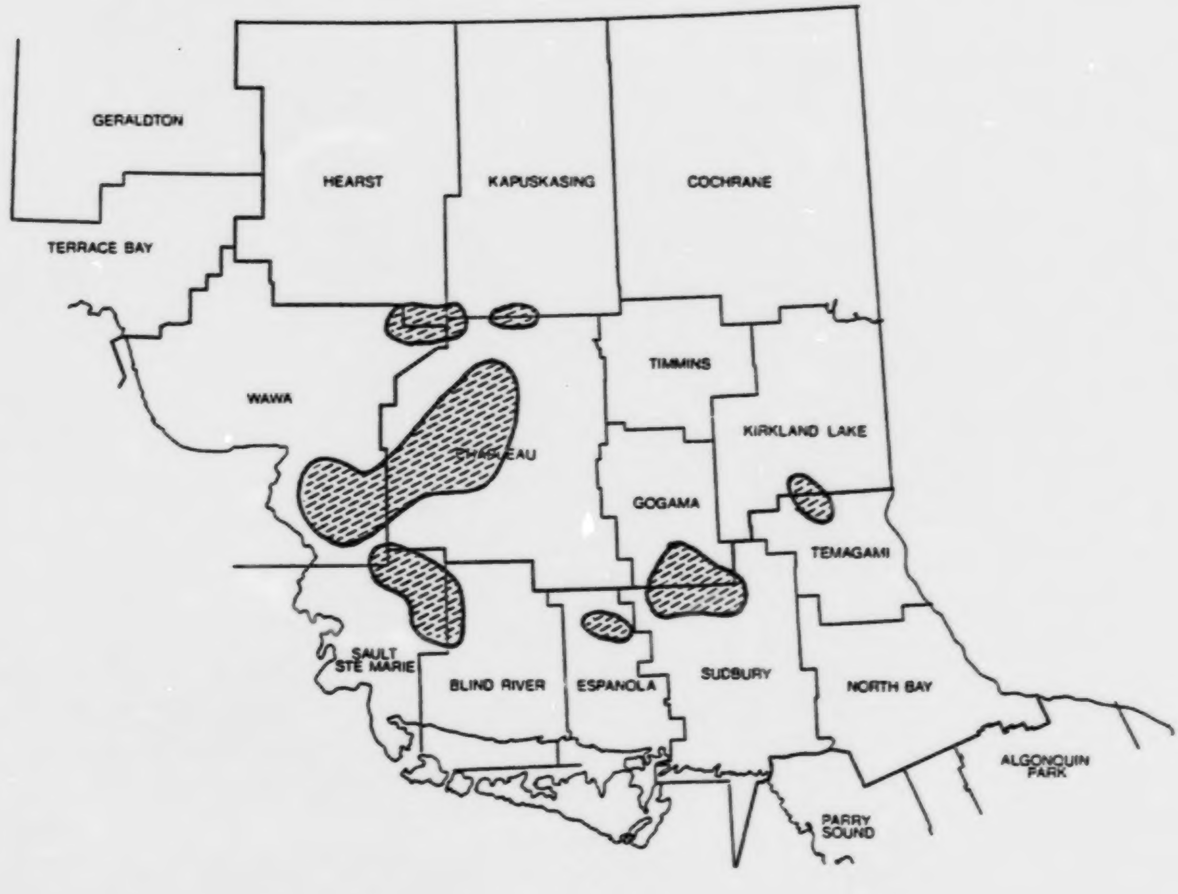
Spruce Budworm

Areas within which defoliation occurred in 1975

LEGEND

Moderate-to-severe defoliation ● or ▨

NORTHEASTERN ONTARIO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SUDBURY
NORTH BAY
ALGONQUIN PARK
PARRY SOUND

Spruce Budworm

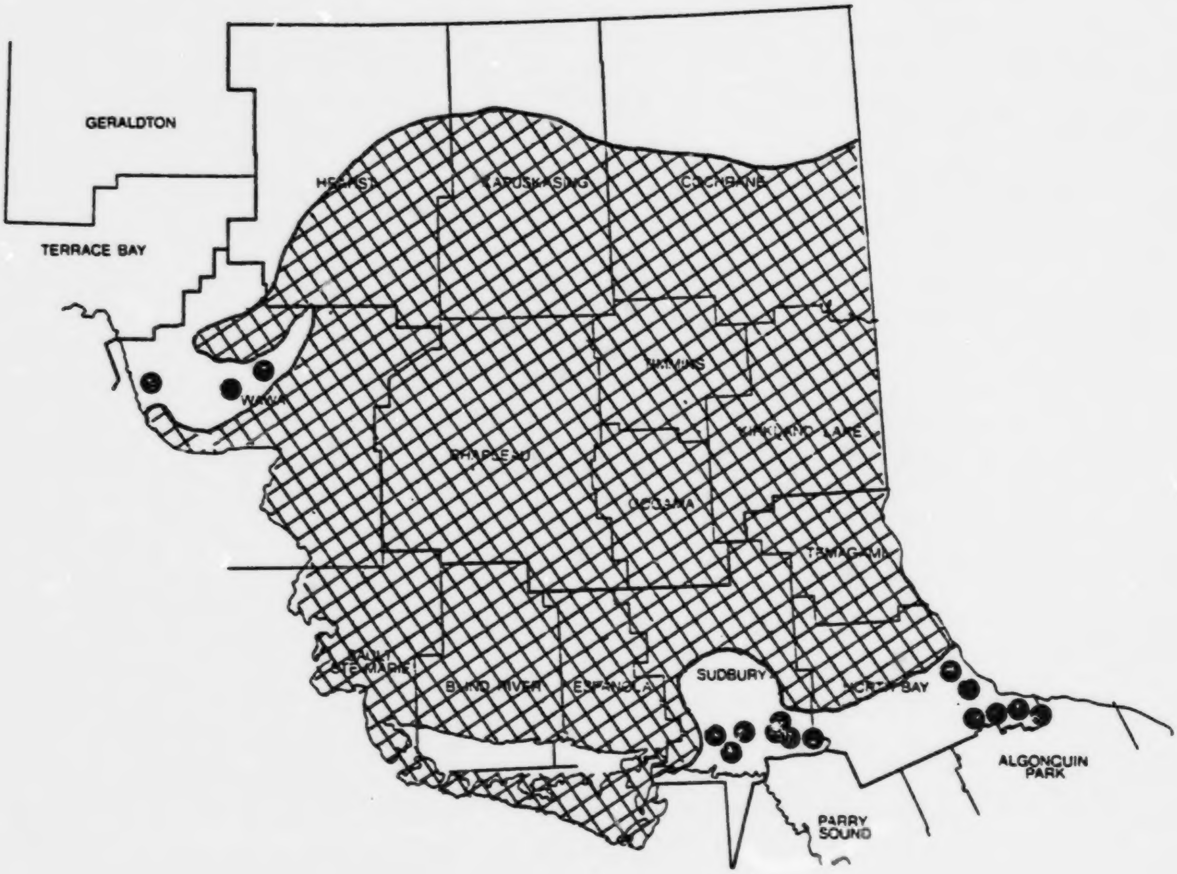
Areas within which balsam fir whole tree and top mortality occurred in 1975

0 Miles 60
0 Kilometres 96

LEGEND

Mortality ▨

NORTHEASTERN ONTARIO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BLIND RIVER
ESPANOLA
SUDBURY
NORTH BAY
ALGONQUIN PARK
PARRY SOUND

0 Miles 60

0 Kilometres 96

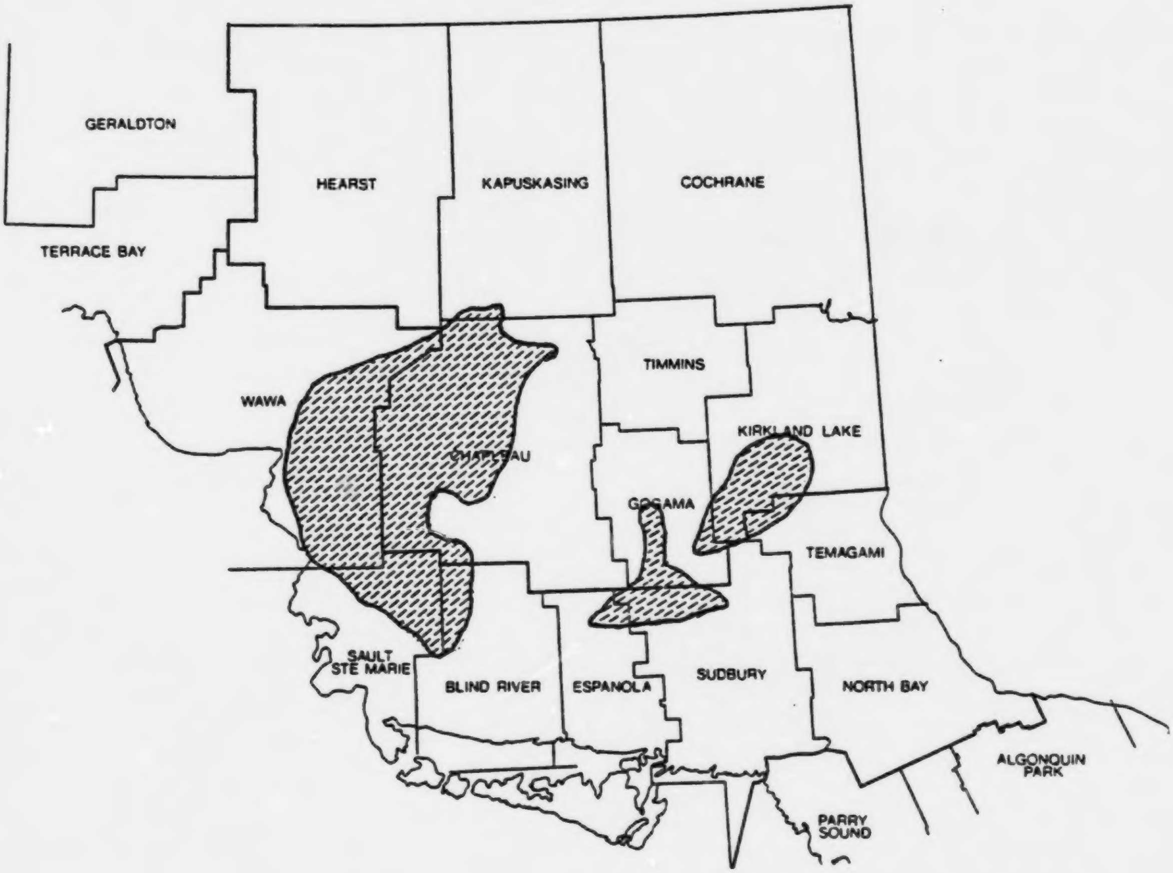
Spruce Budworm

Areas within which defoliation occurred in 1976

LEGEND

Moderate-to-severe defoliation ● or ▨

NORTHEASTERN ONTARIO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SUDBURY
NORTH BAY
ALGONQUIN PARK
PARRY SOUND

0 Miles 60

0 Kilometres 96

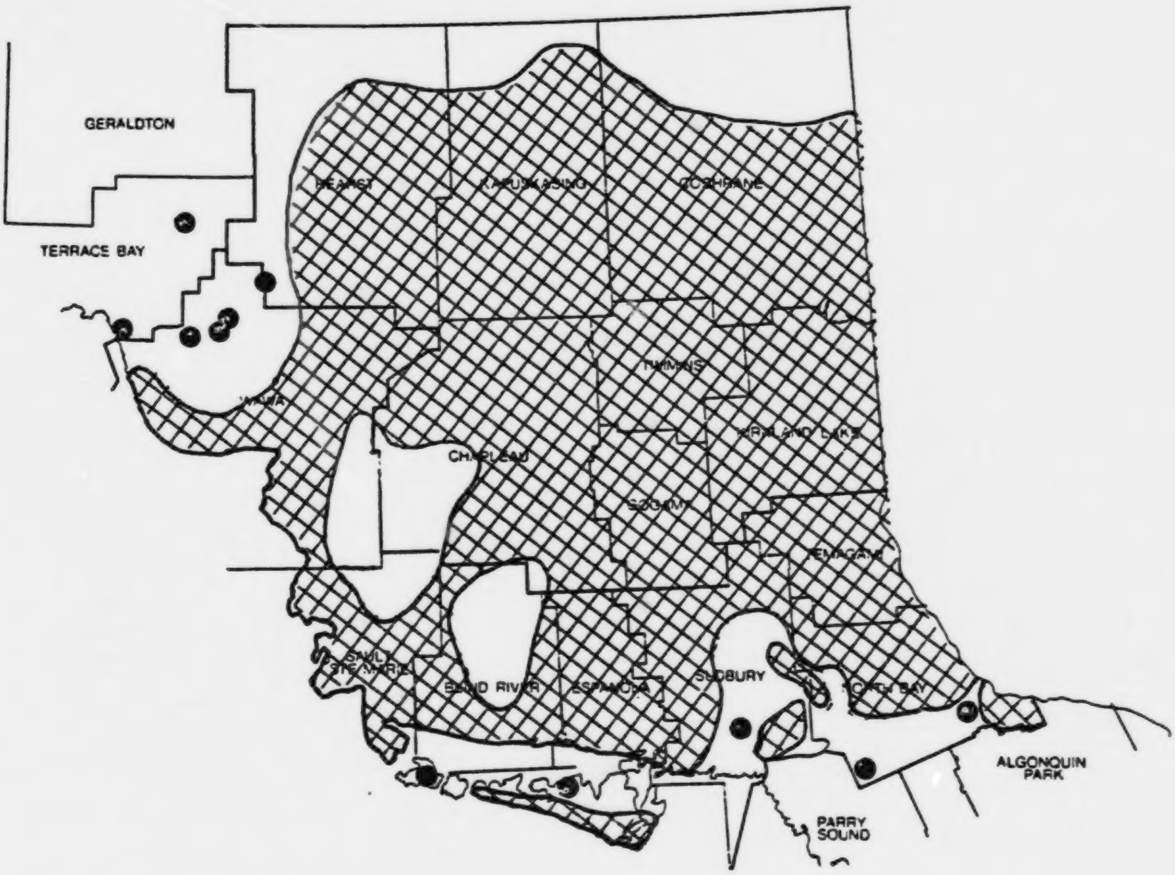
Spruce Budworm

Areas within which balsam fir
whole tree and top mortality
occurred in 1976

LEGEND

Mortality ▨

NORTHEASTERN ONTARIO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SUDBURY
NORTH BAY
ALGONQUIN PARK
PARRY SOUND

0 Miles 60
0 Kilometres 96

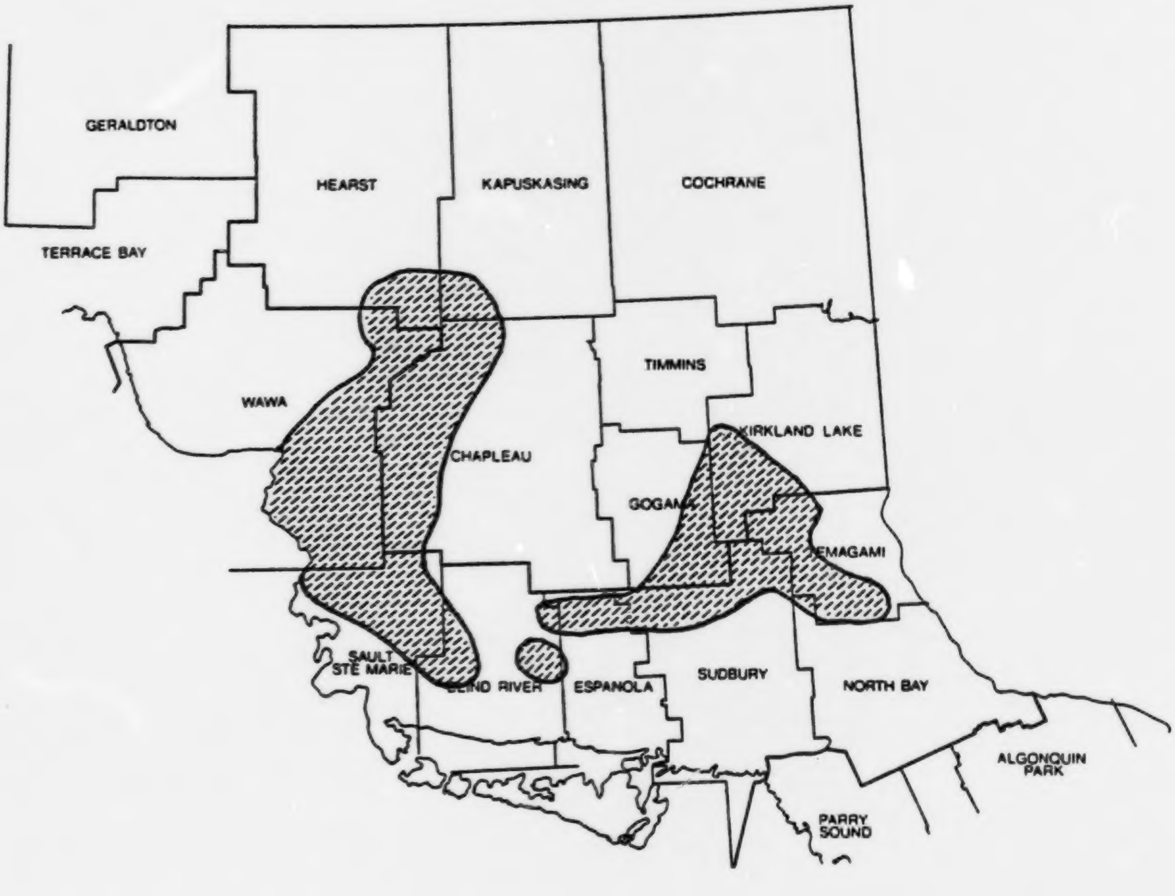
Spruce Budworm

Areas within which defoliation occurred in 1977

LEGEND

Moderate-to-severe defoliation ● or ▨

NORTHEASTERN ONTARIO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ALGONQUIN PARK
PARRY SOUND

Spruce Budworm

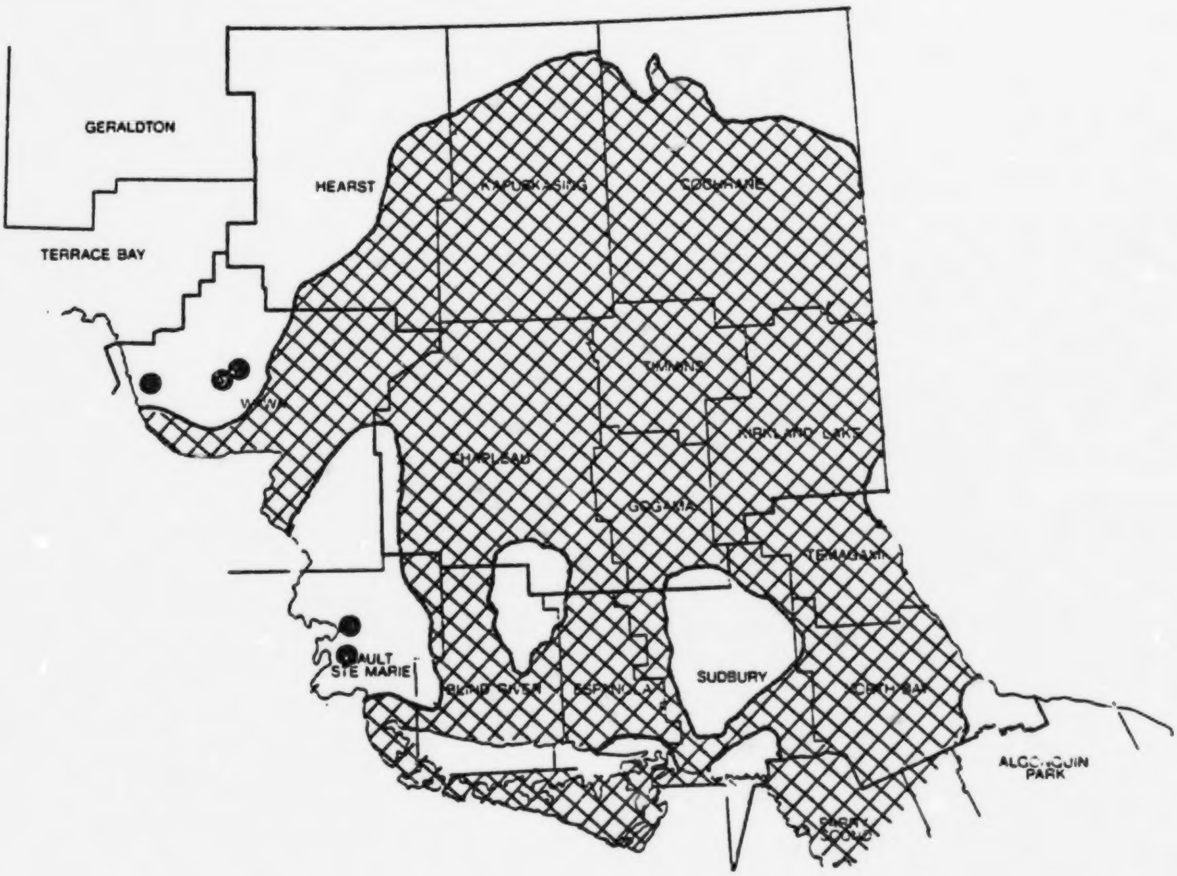
0 Miles 60
0 Kilometres 96

Areas within which balsam fir whole tree and top mortality occurred in 1977

LEGEND

Mortality ▨

NORTHEASTERN ONTARIO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PARRY SOUND

0 Miles 60
0 Kilometres 96

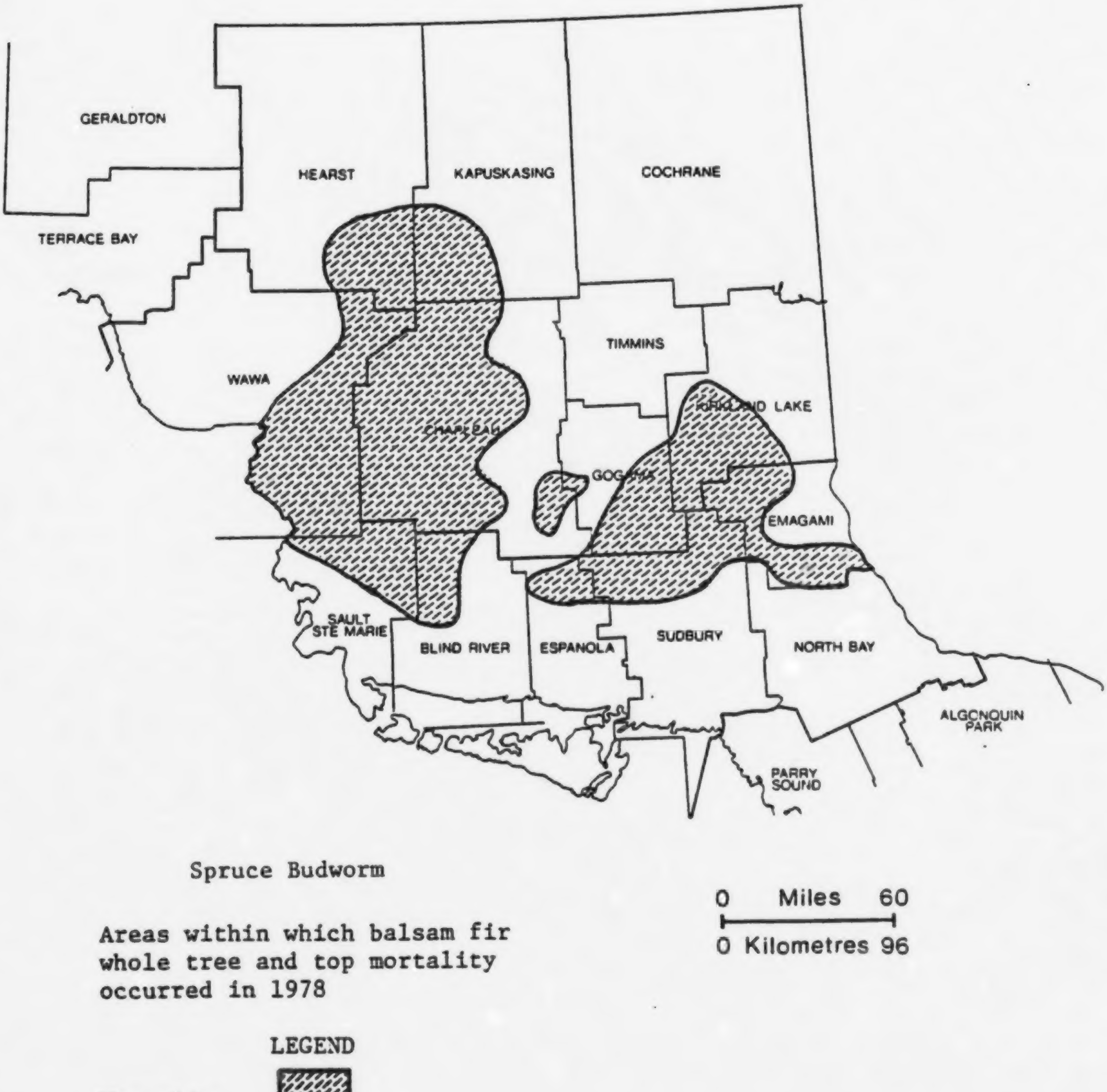
Spruce Budworm

Areas within which defoliation occurred in 1978

LEGEND

Moderate-to-severe defoliation ● or ▨

NORTHEASTERN ONTARIO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Spruce Budworm

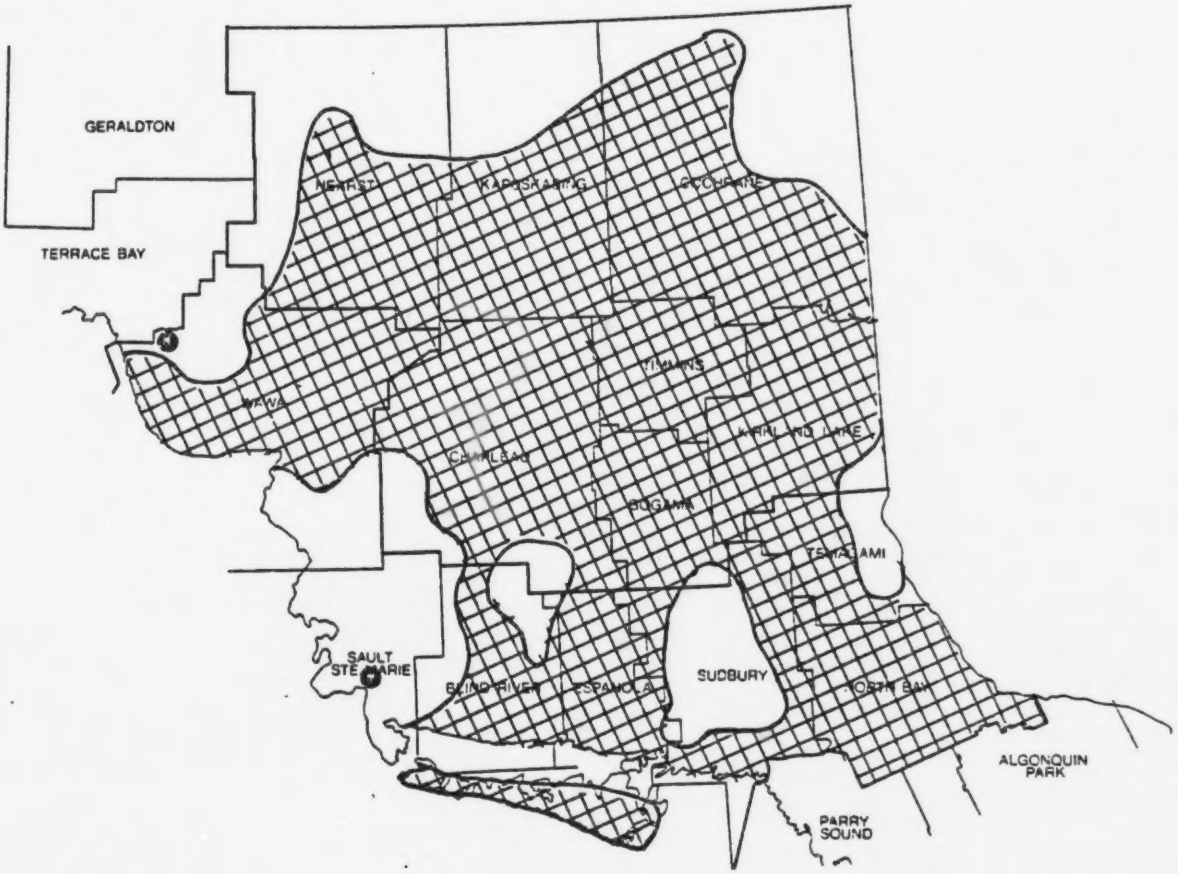
Areas within which balsam fir
whole tree and top mortality
occurred in 1978

0 Miles 60
0 Kilometres 96

LEGEND

Mortality ▨

NORTHEASTERN ONTARIO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NORTH BAY
ALGONQUIN PARK
PARRY SOUND
0 Miles 60
0 Kilometres 96

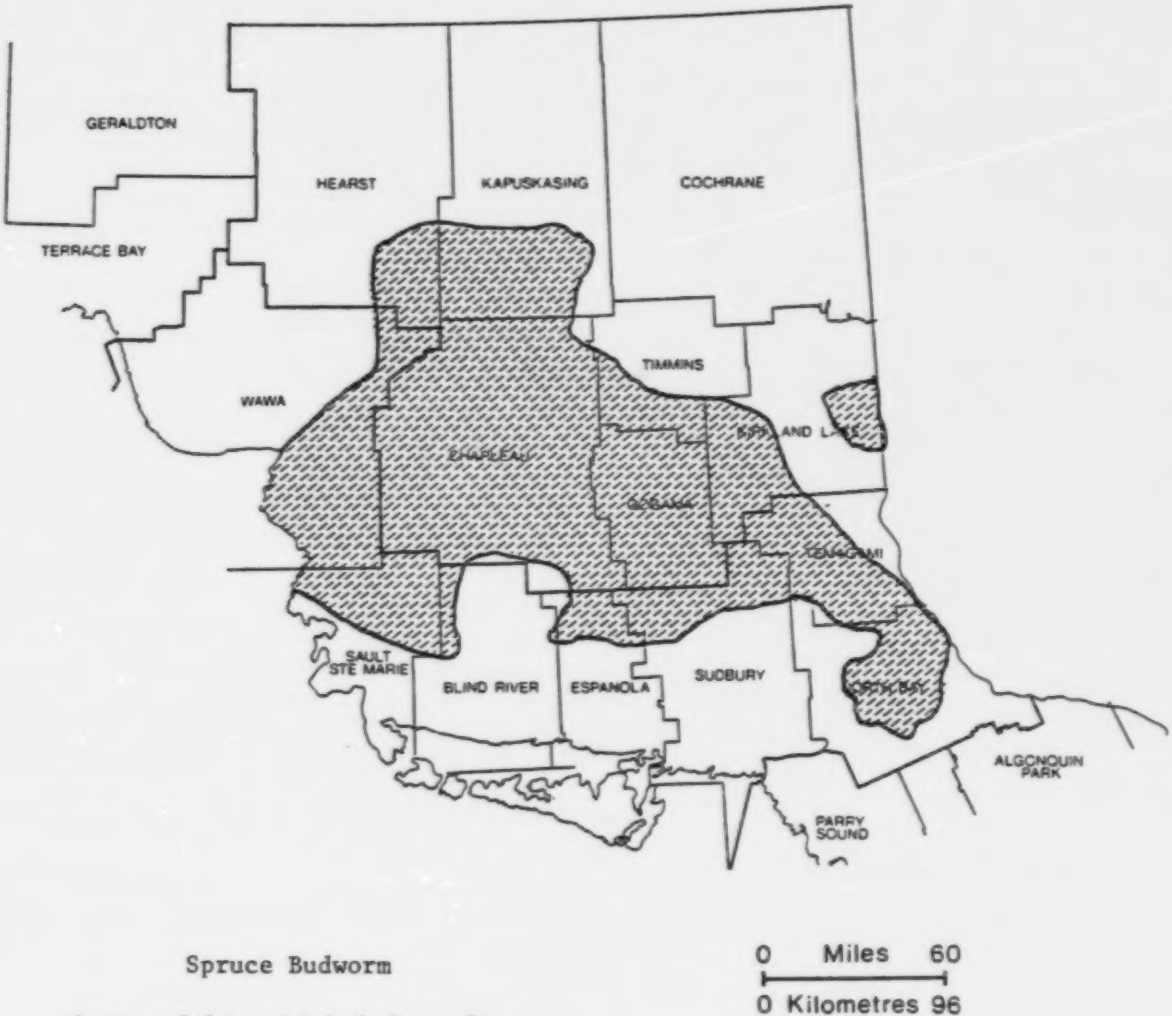
Spruce Budworm

Areas within which defoliation
occurred in 1979

LEGEND

Moderate-to-severe defoliation ● or ▨

NORTHEASTERN ONTARIO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SUDBURY
NORTH BAY
ALGONQUIN PARK
PARRY SOUND
0 Miles 60
0 Kilometres 96

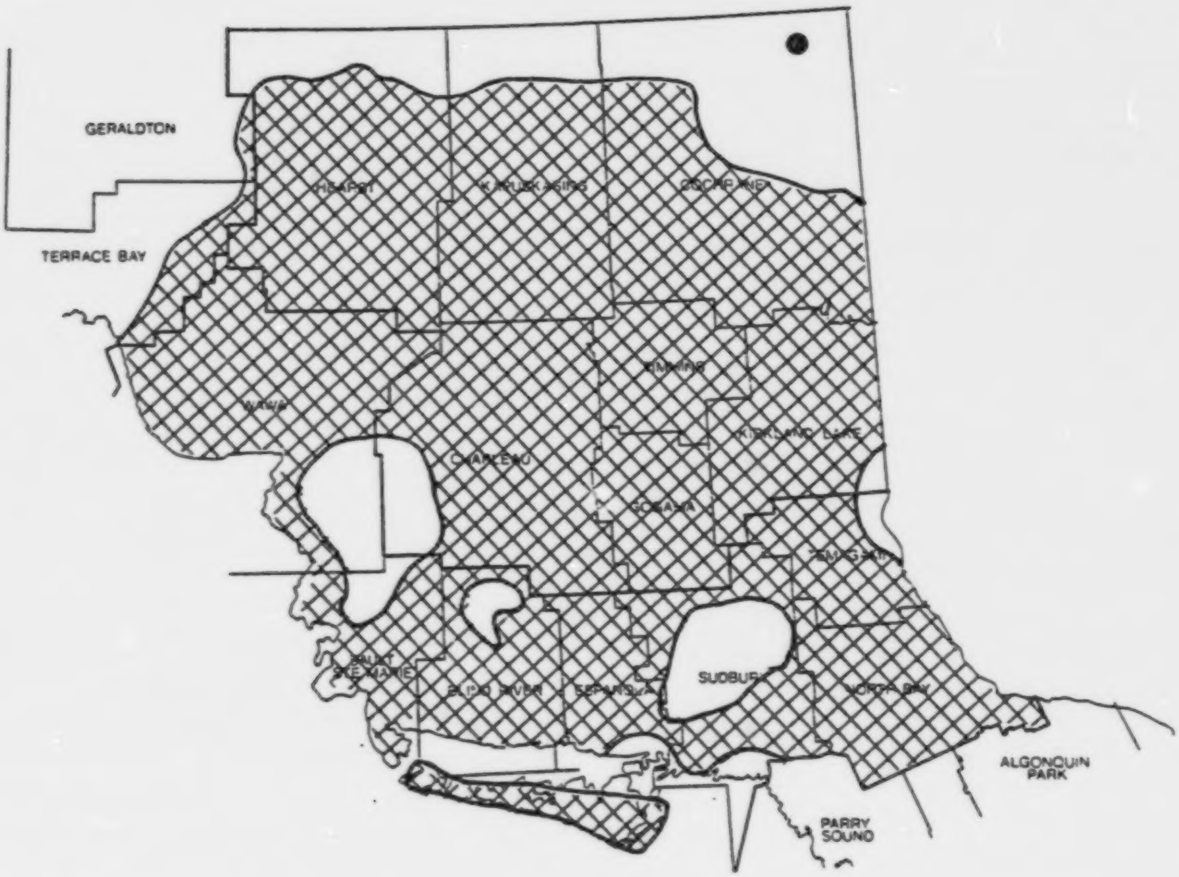
Spruce Budworm

Areas within which balsam fir whole tree and top mortality occurred in 1979

LEGEND

Mortality ▨

NORTHEASTERN ONTARIO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BLIND RIVER
ESPANOLA
SUDBURY
NORTH BAY
ALGONQUIN PARK
PARRY SOUND

0 Miles 60

0 Kilometres 96

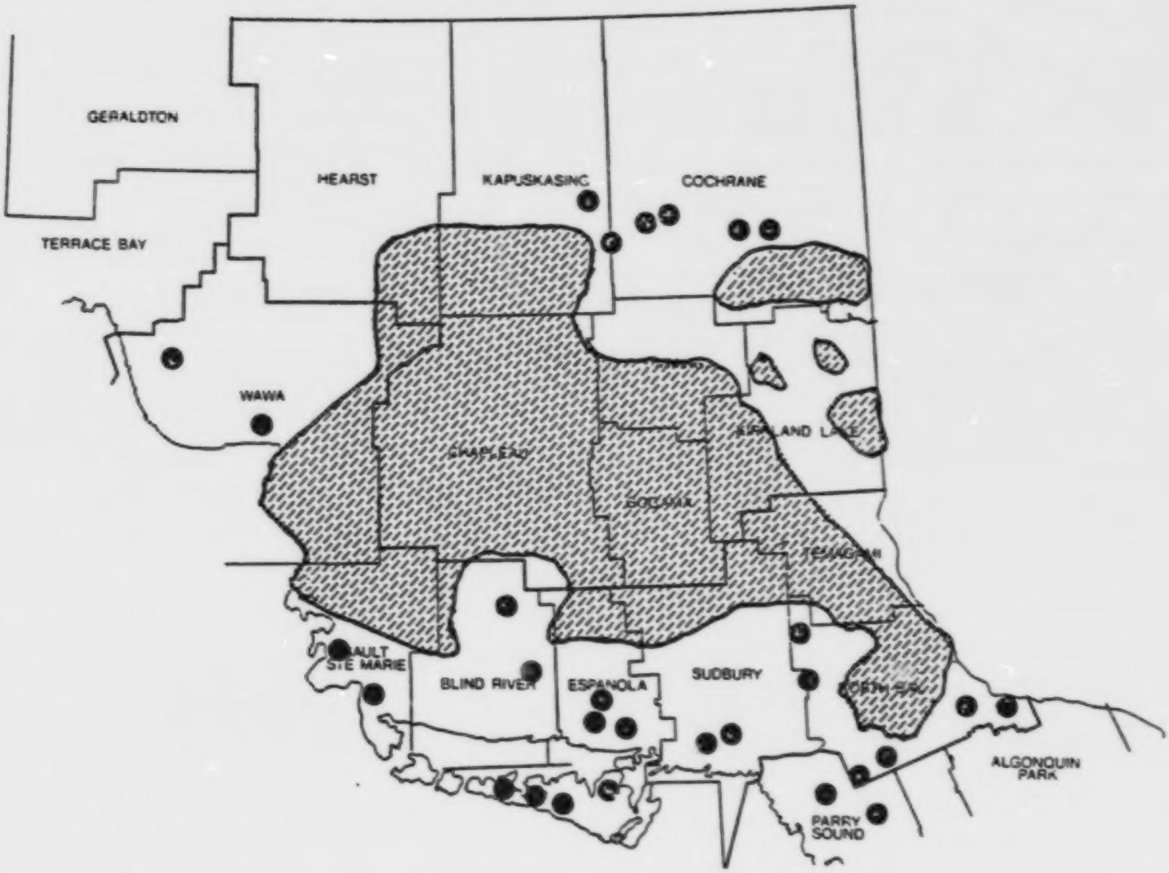
Spruce Budworm

Areas within which defoliation occurred in 1980

LEGEND

Moderate-to-severe defoliation ● or ▨

NORTHEASTERN ONTARIO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BLIND RIVER
ESPANOLA
SUDBURY
NORTH BAY
ALGONQUIN PARK
PARRY SOUND
0 Miles 60
0 Kilometres 96

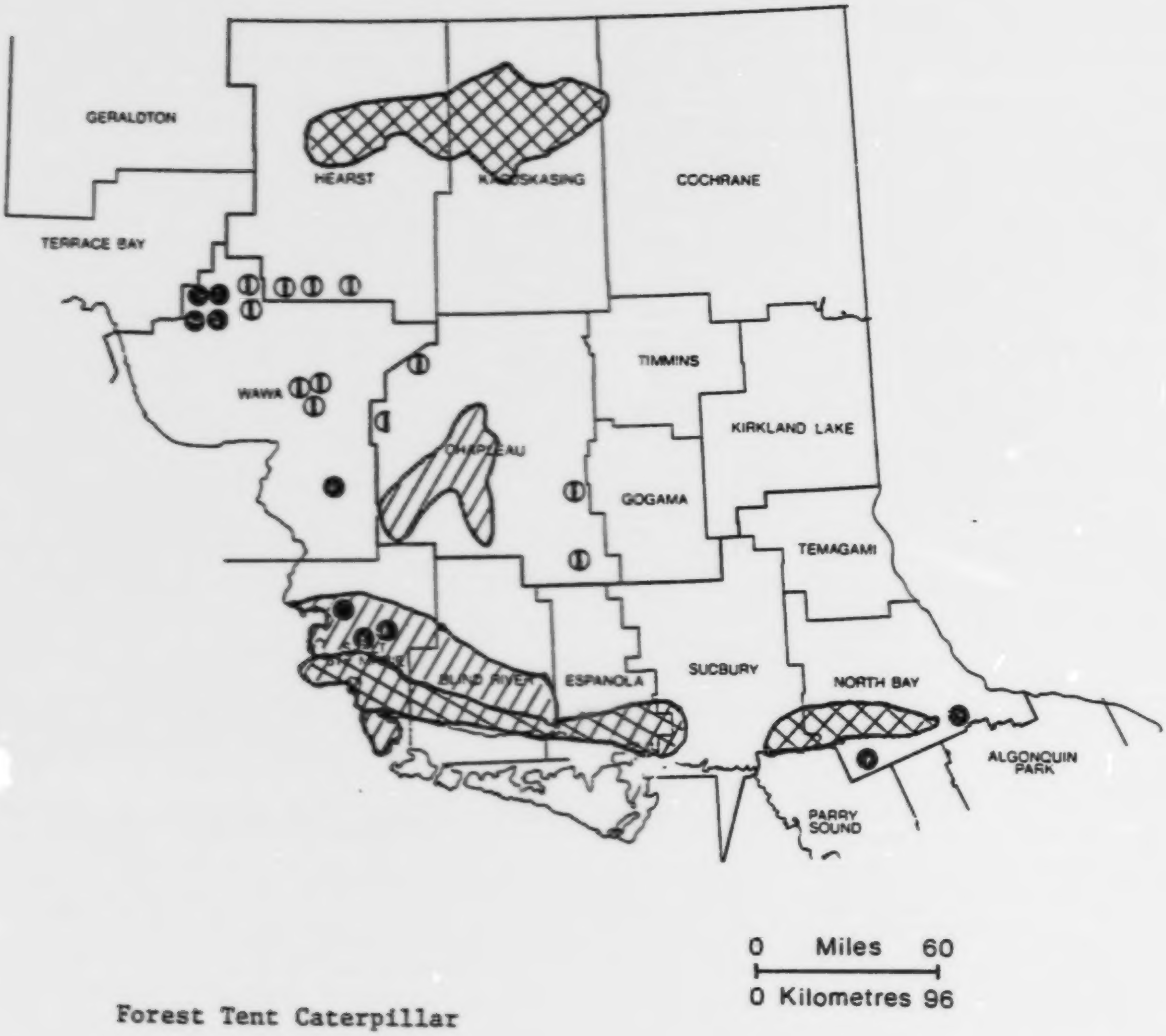
Spruce Budworm

Areas within which balsam fir whole tree and top mortality occurred in 1980

LEGEND

Mortality ▨ or ●

NORTHEASTERN ONTARIO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SAULT STE. MARIE
BLIND RIVER
ESPANOLA
SUDBURY
NORTH BAY
ALGONQUIN PARK
PARRY SOUND
0 Miles 60
0 Kilometres 96

Forest Tent Caterpillar

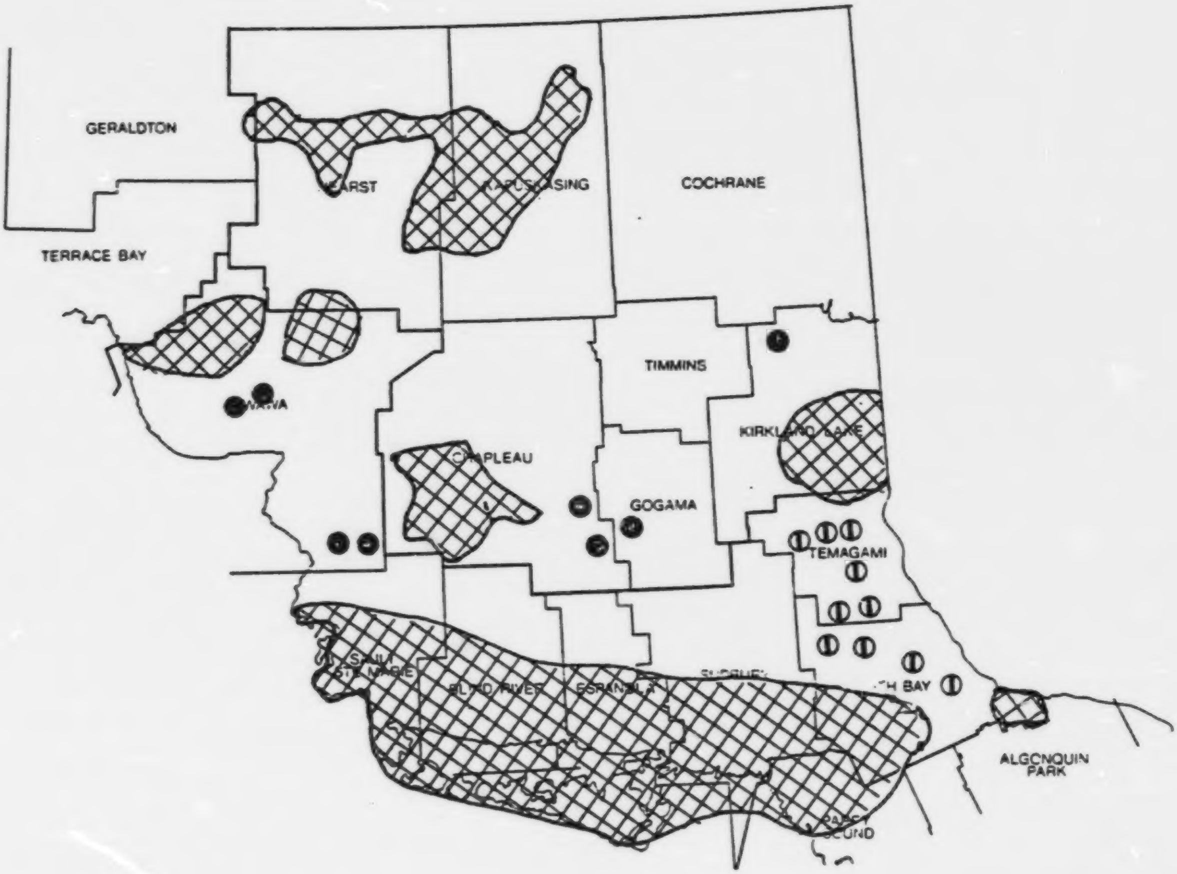
Areas within which defoliation occurred in 1950

LEGEND

Light defoliation ⦶ or ▨

Moderate-to-severe defoliation ● or ▦

NORTHEASTERN ONTARIO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BLIND RIVER
ESPANOLA
SUDBURY
NORTH BAY
ALGONQUIN PARK
PARRY SOUND
0 Miles 60
0 Kilometres 96

Forest Tent Caterpillar

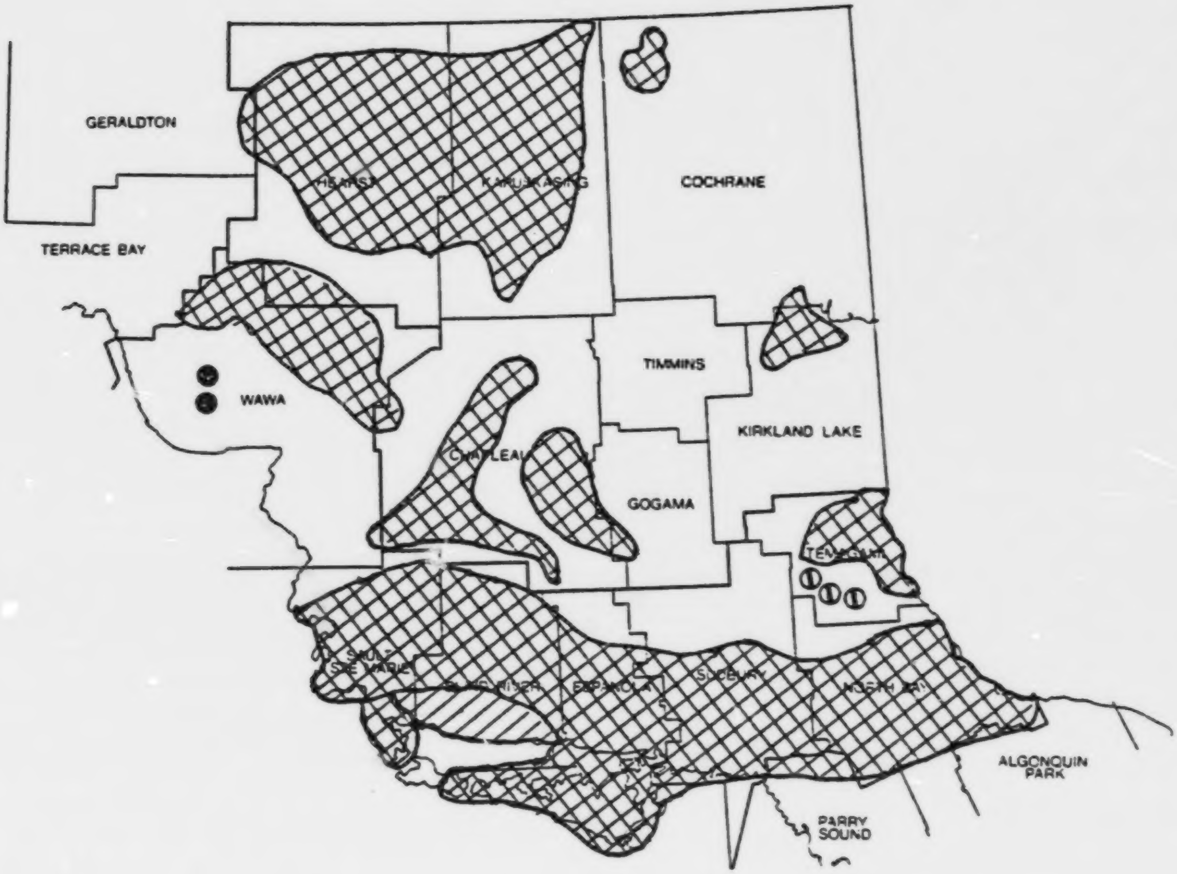
Areas within which defoliation occurred in 1951

LEGEND

Light defoliation ⦶

Moderate-to-severe defoliation ● or ▩

NORTHEASTERN ONTARIO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BLIND RIVER
ESPANOLA
SUDBURY
NORTH BAY
ALGONQUIN PARK
PARRY SOUND

0 Miles 60

0 Kilometres 96

Forest Tent Caterpillar

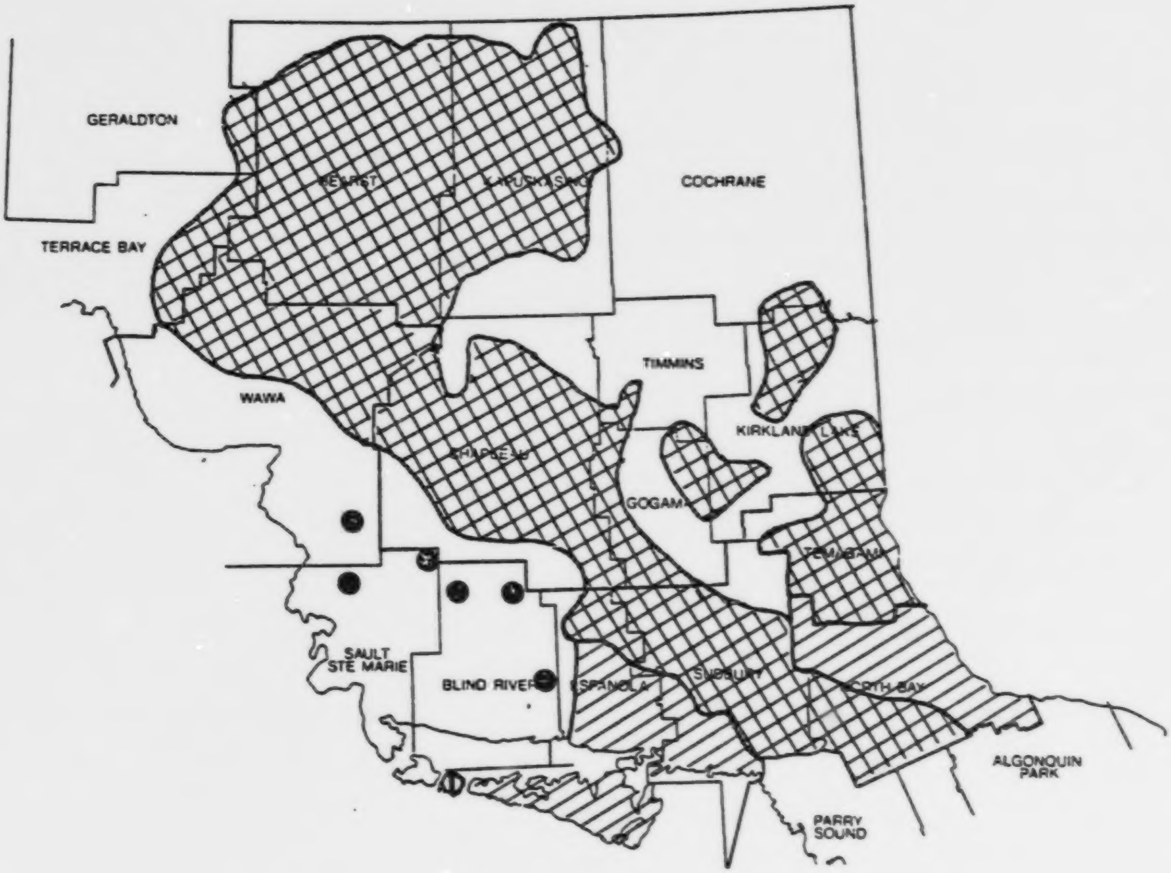
Areas within which defoliation
occurred in 1952

LEGEND

Light defoliation ⦶ or ▨

Moderate-to-severe defoliation ● or ▩

NORTHEASTERN ONTARIO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ESPANOLA
SUDBURY
NORTH BAY
ALGONQUIN PARK
PARRY SOUND

Forest Tent Caterpillar

Areas within which defoliation
occurred in 1953

0 Miles 60

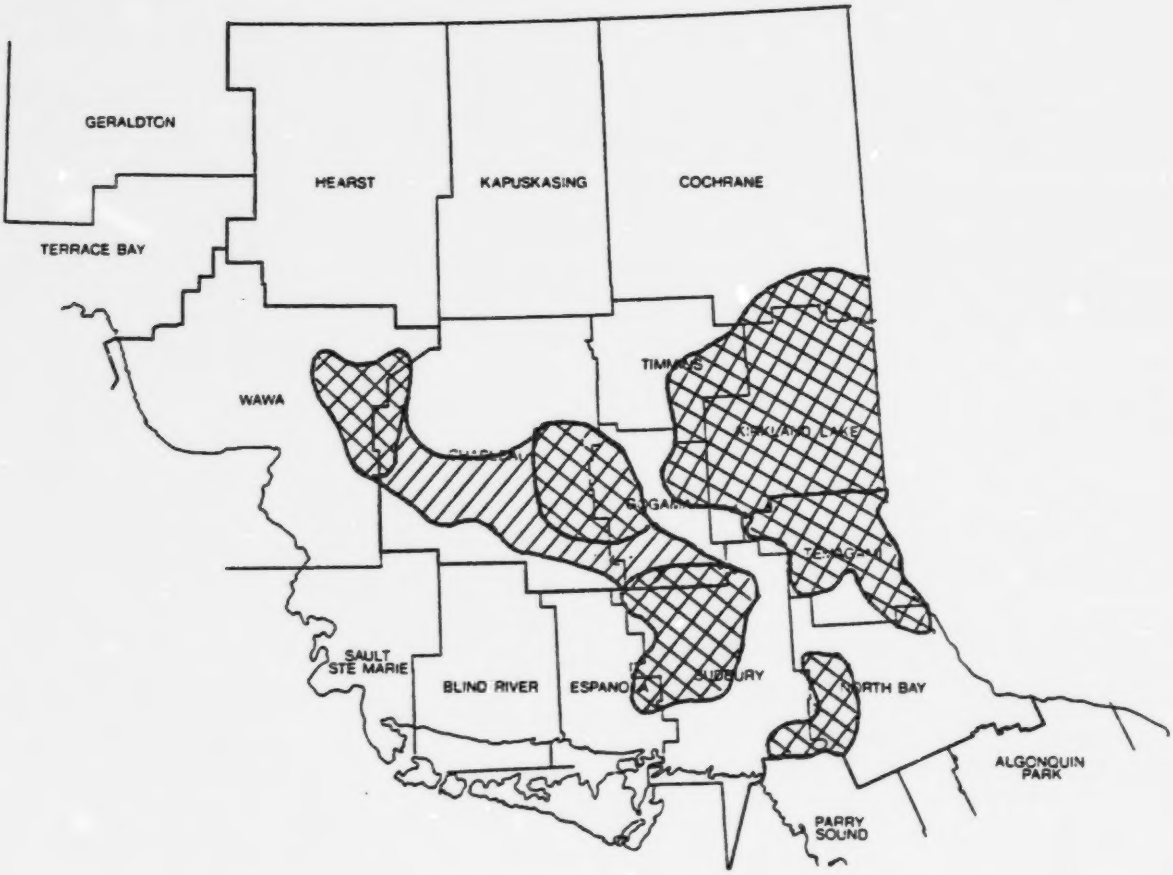
0 Kilometres 96

LEGEND

Light defoliation ◐ or ▨

Moderate-to-severe defoliation ● or ▩

NORTHEASTERN ONTARIO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BLIND RIVER
ESPANOLA
SUDBURY
NORTH BAY
ALGONQUIN PARK
PARRY SOUND

0 Miles 60
0 Kilometres 96

Forest Tent Caterpillar

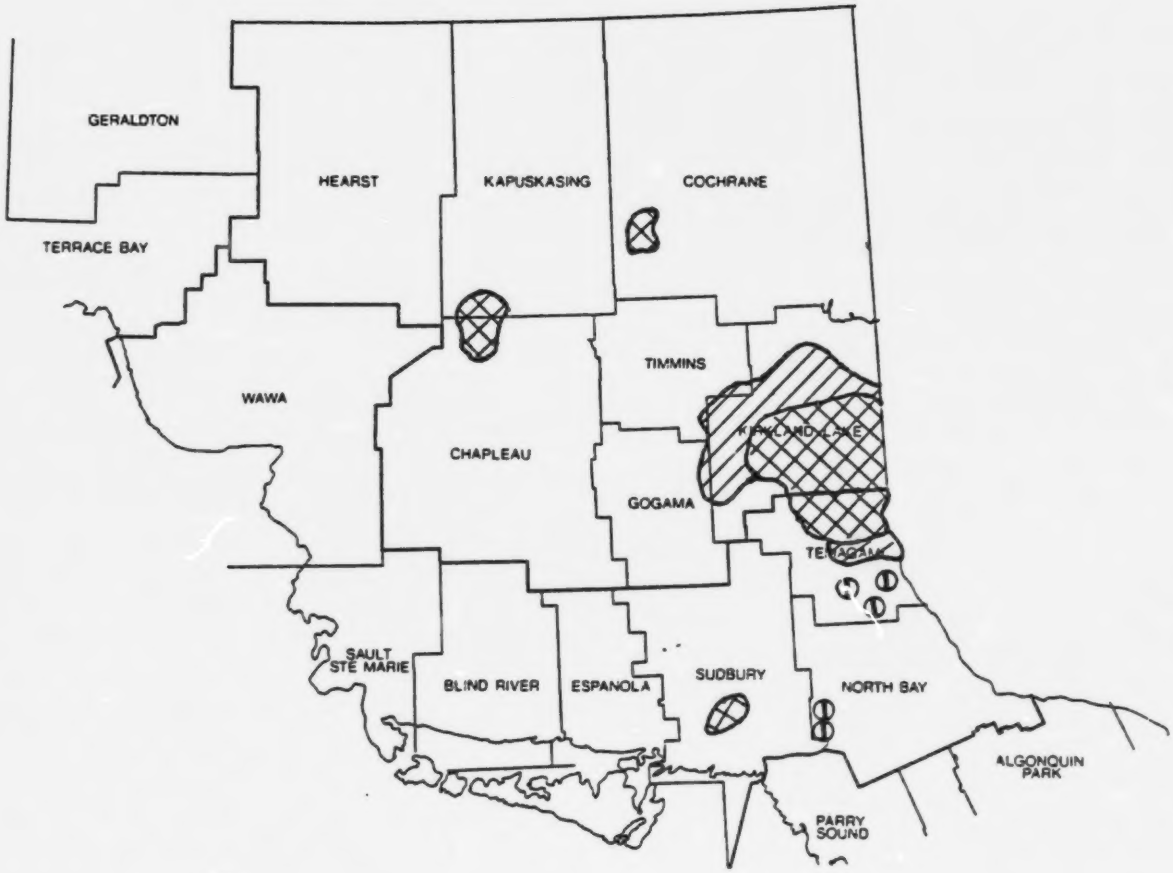
Areas within which defoliation occurred in 1954

LEGEND

Light defoliation ▨

Moderate-to-severe defoliation ▦

NORTHEASTERN ONTARIO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BLIND RIVER
ESPANOLA
SUDBURY
NORTH BAY
ALGONQUIN PARK
PARRY SOUND

0 Miles 60
0 Kilometres 96

Forest Tent Caterpillar

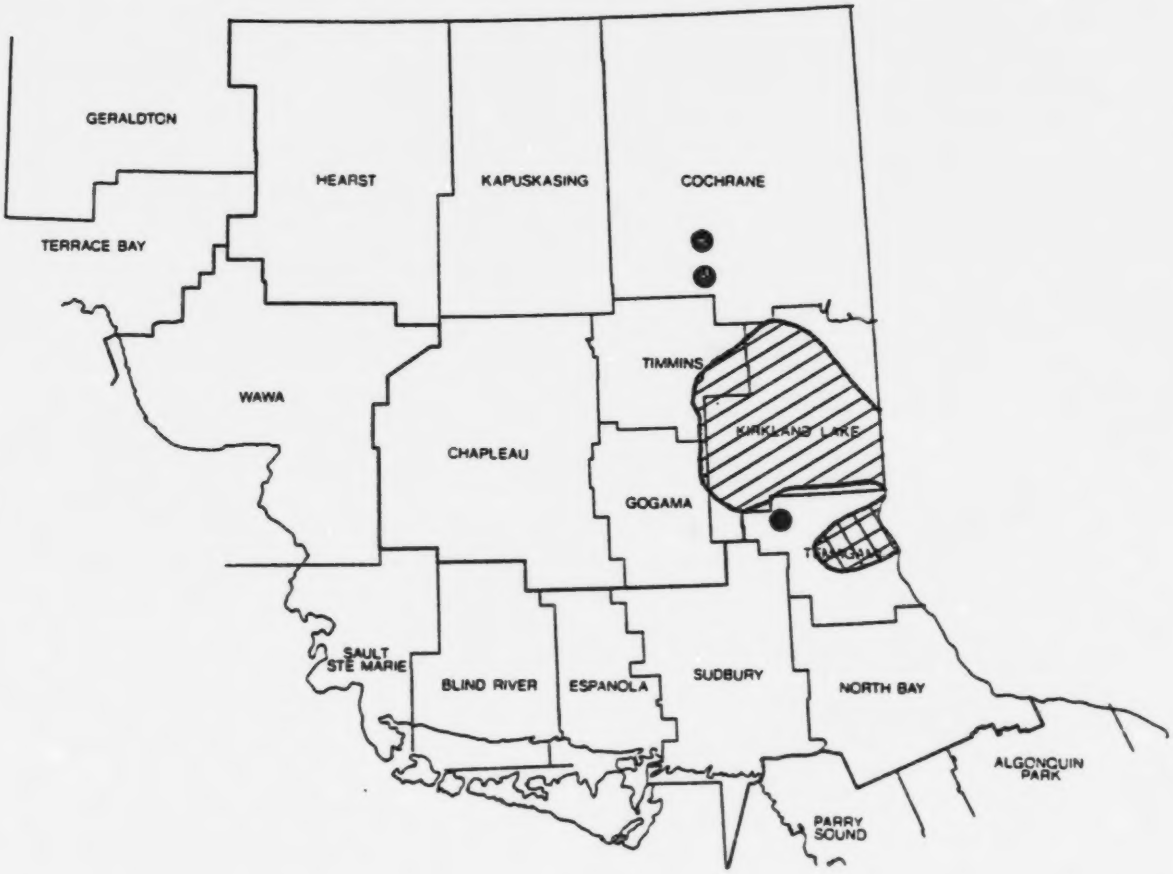
Areas within which defoliation occurred in 1955

LEGEND

Light defoliation ⦶ or ▨

Moderate-to-severe defoliation ▩

NORTHEASTERN ONTARIO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BLIND RIVER
ESPANOLA
SUDBURY
NORTH BAY
ALGONQUIN PARK
PARRY SOUND

Forest Tent Caterpillar

0 Miles 60
0 Kilometres 96

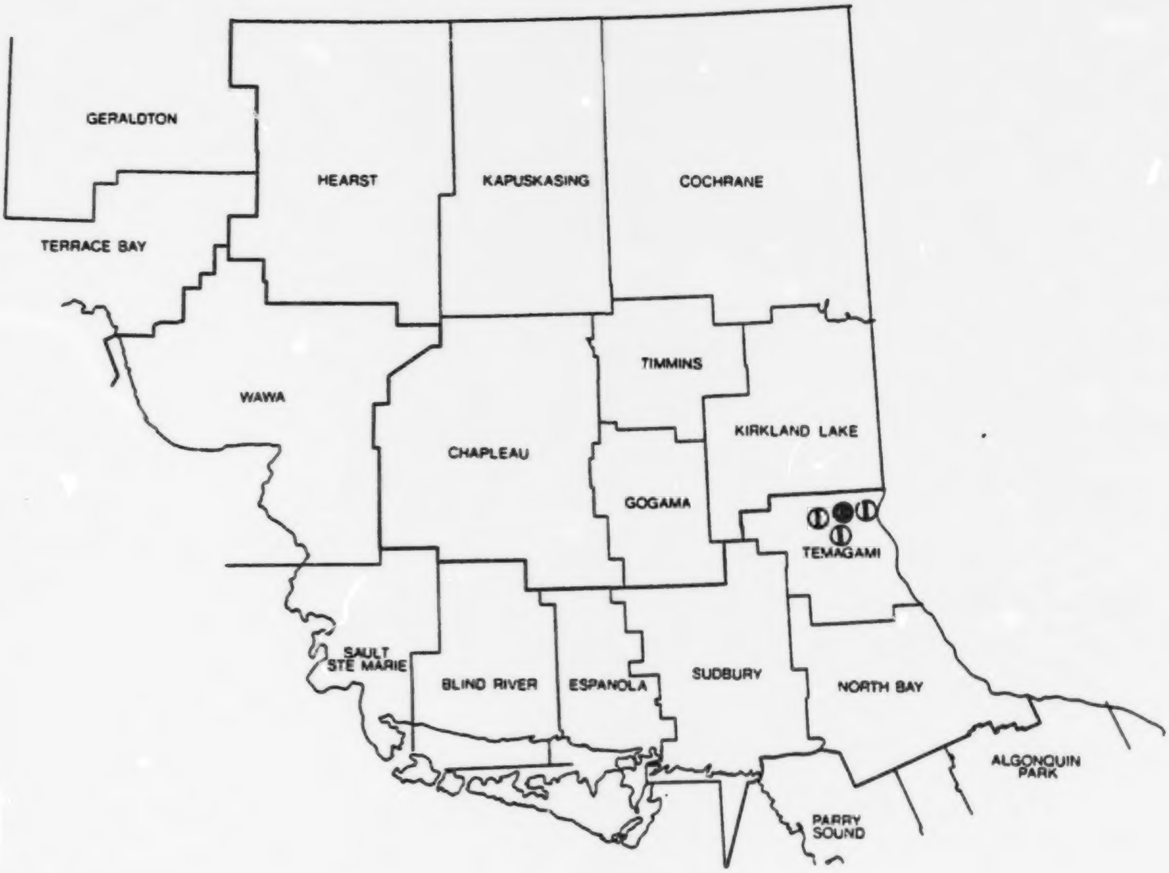
Areas within which defoliation
occurred in 1956

LEGEND

Light defoliation ▨

Moderate-to-severe defoliation ● or ▩

NORTHEASTERN ONTARIO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ESPANOLA
SUDBURY
NORTH BAY
ALGONQUIN PARK
PARRY SOUND

Forest Tent Caterpillar

Areas within which defoliation occurred in 1957

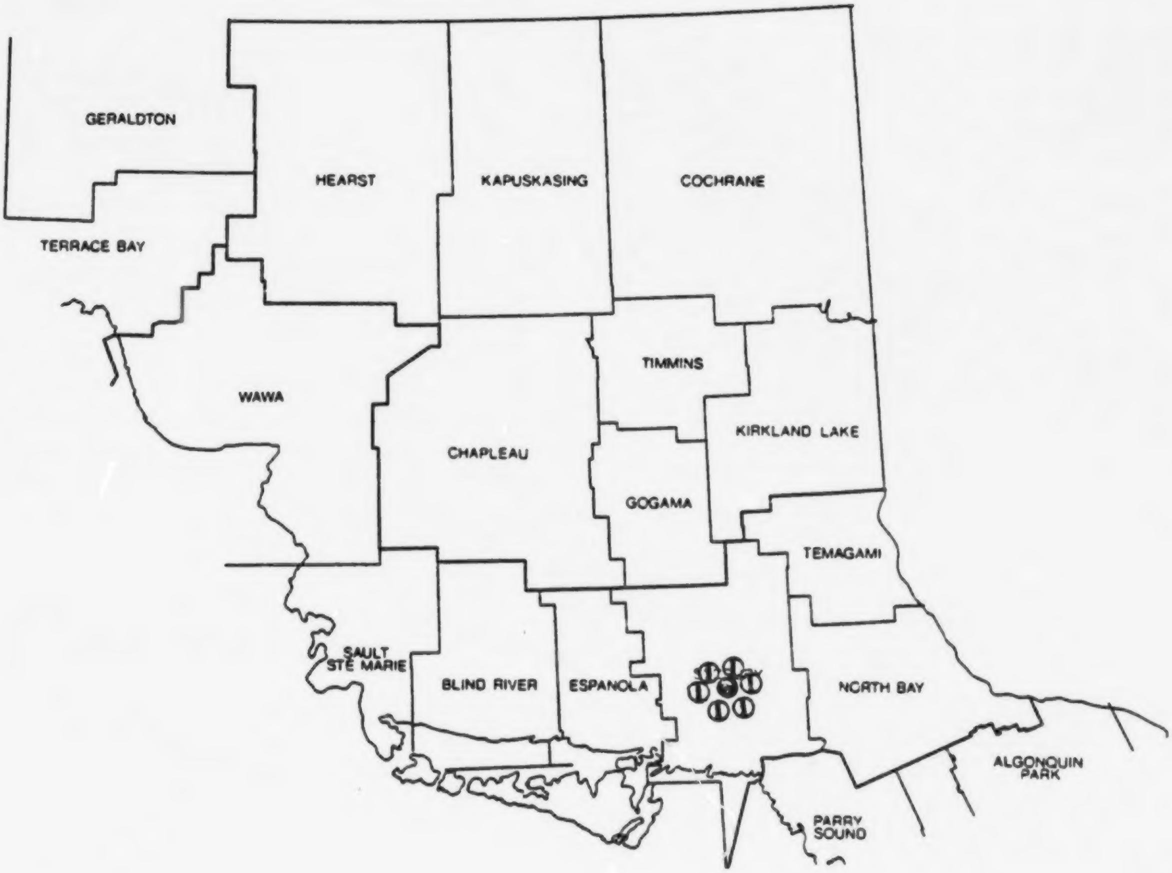
0 Miles 60
0 Kilometres 96

LEGEND

Light defoliation ⦶

Moderate-to-severe defoliation ●

NORTHEASTERN ONTARIO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SAULT STE MARIE
BLIND RIVER
ESPANOLA
NORTH BAY
ALGONQUIN PARK
PARRY SOUND
0 Miles 60
0 Kilometres 96

Forest Tent Caterpillar

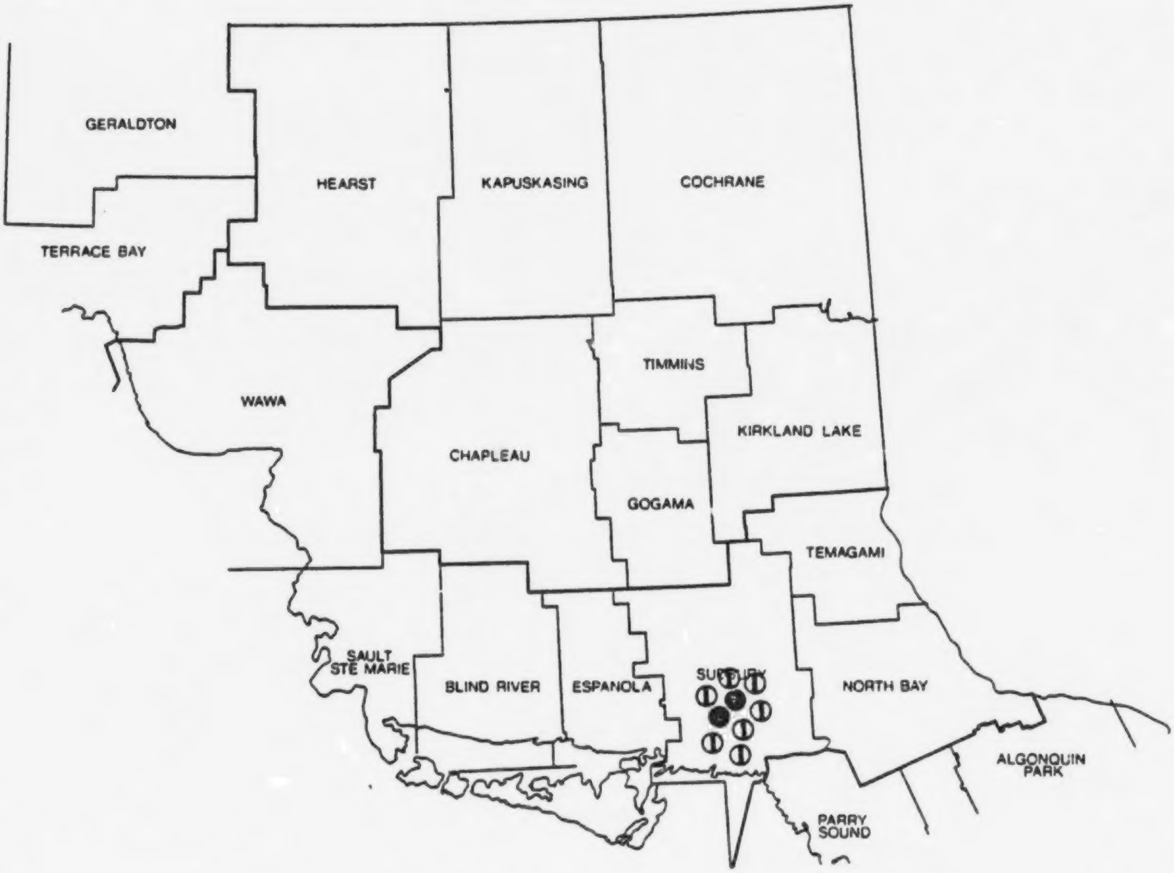
Areas within which defoliation occurred in 1960

LEGEND

Light defoliation ⦶

Moderate-to-severe defoliation ●

NORTHEASTERN ONTARIO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SAULT STE MARIE
BLIND RIVER
ESPANOLA
SUDBURY
NORTH BAY
ALGONQUIN PARK
PARRY SOUND

Forest Tent Caterpillar

Areas within which defoliation occurred in 1961

LEGEND

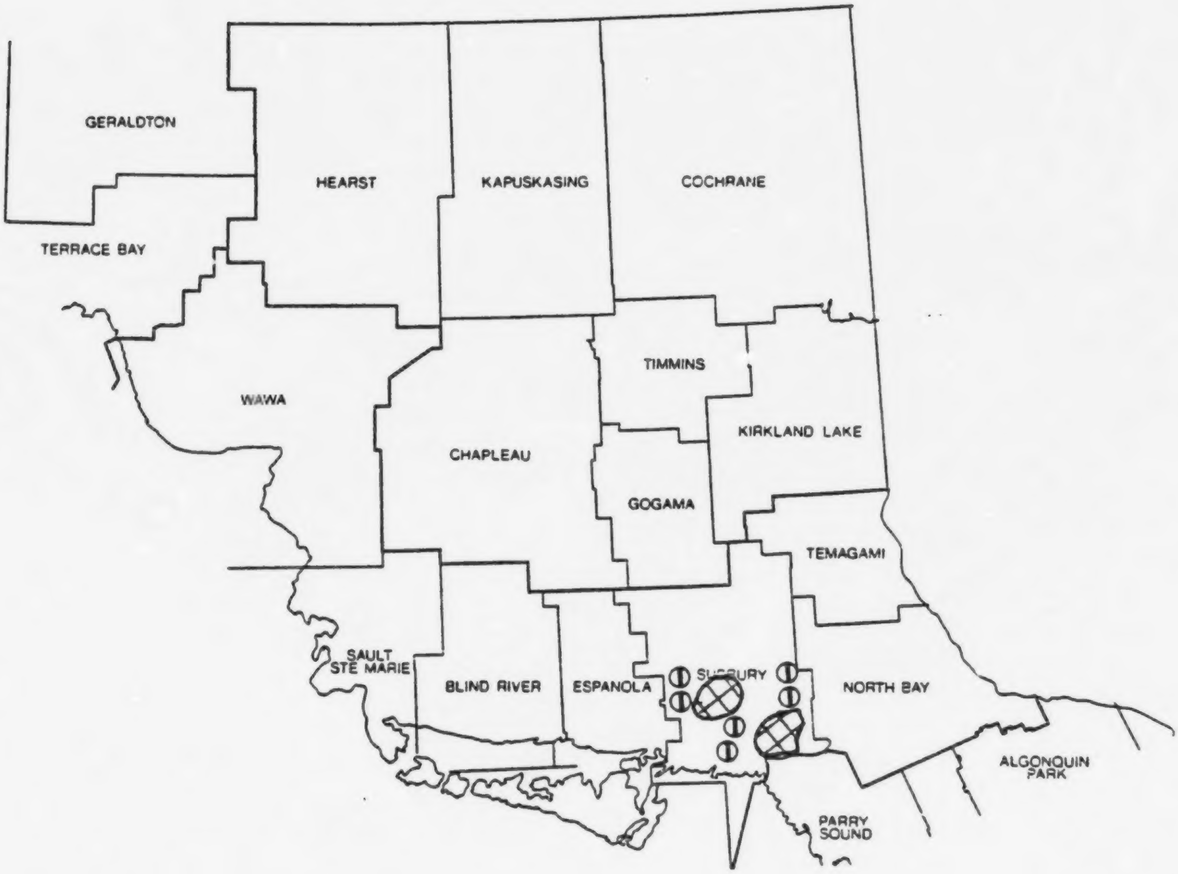
Light defoliation ⦶

Moderate-to-severe defoliation ●

0 Miles 60

0 Kilometres 96

NORTHEASTERN ONTARIO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SAULT STE MARIE
BLIND RIVER
ESPANOLA
SUDBURY
NORTH BAY
ALGONQUIN PARK
PARRY SOUND

0 Miles 60

0 Kilometres 96

Forest Tent Caterpillar

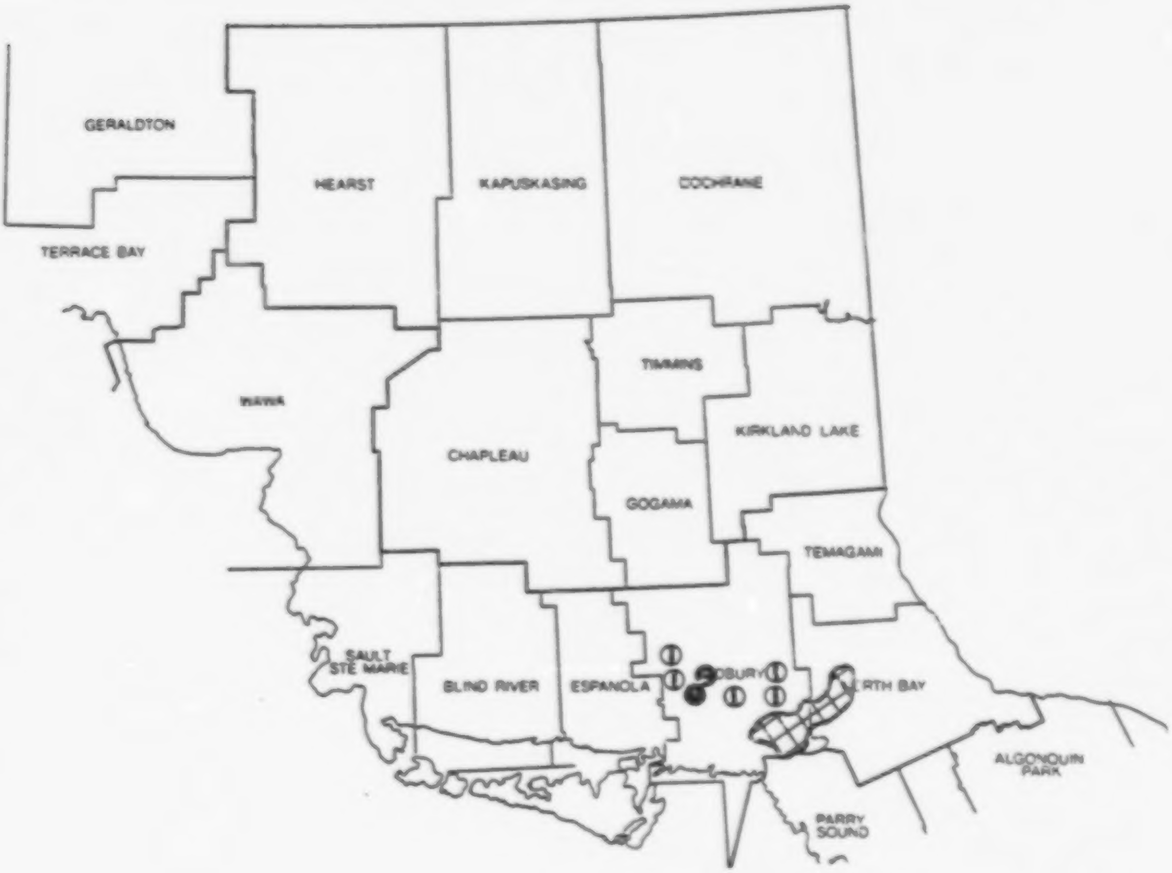
Areas within which defoliation
occurred in 1962

LEGEND

Light defoliation ⦶

Moderate-to-severe defoliation ▩

NORTHEASTERN ONTARIO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GOGAMA
TEMAGAMI
SAULT STE MARIE
BLIND RIVER
ESPANOLA
DBURY
RTH BAY
ALGONQUIN PARK
PARRY SOUND

0 Miles 60

0 Kilometres 96

Forest Tent Caterpillar

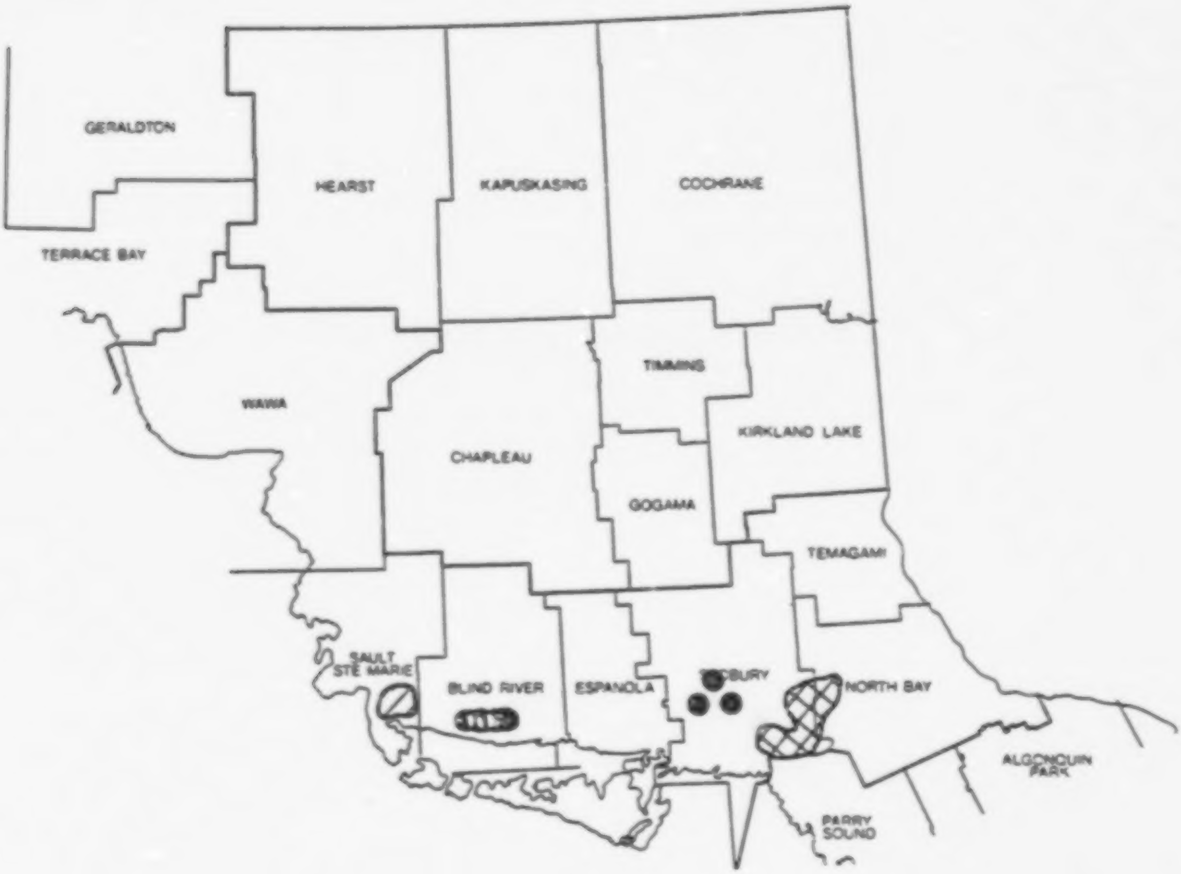
Areas within which defoliation occurred in 1963

LEGEND

Light defoliation ◐

Moderate-to-severe defoliation ● or ▨

NORTHEASTERN ONTARIO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TIMMINS
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SAULT STE MARIE
BLIND RIVER
ESPANOLA
SUDBURY
NORTH BAY
ALGONQUIN PARK
PARRY SOUND

Forest Tent Caterpillar

0 Miles 60
0 Kilometres 96

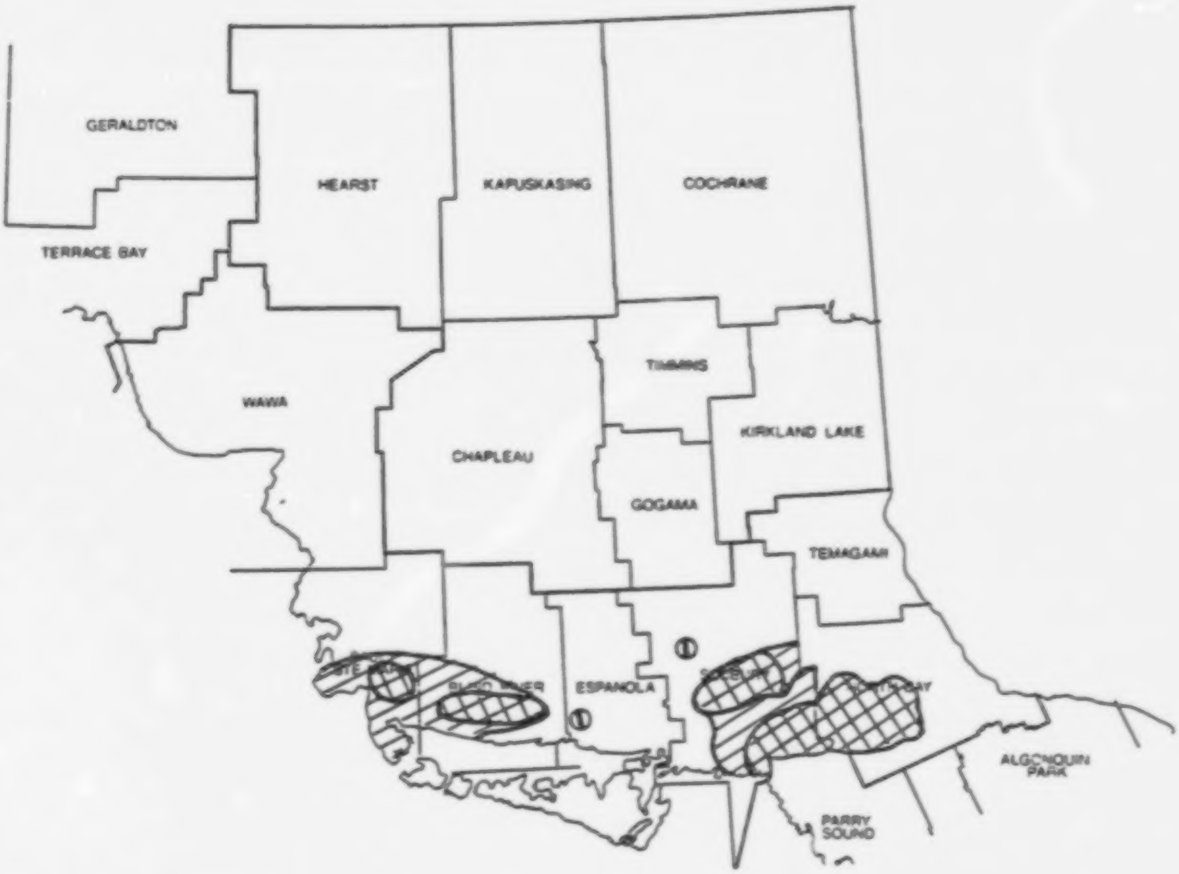
Areas within which defoliation occurred in 1964

LEGEND

Light defoliation ◐ or ▨

Moderate-to-severe defoliation ● or ▦

NORTHEASTERN ONTARIO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STE MARIE
BLIND RIVER
ESPANOLA
SUDBURY
NORTH BAY
ALGONQUIN PARK
PARRY SOUND

Forest Tent Caterpillar

0 Miles 60
0 Kilometres 96

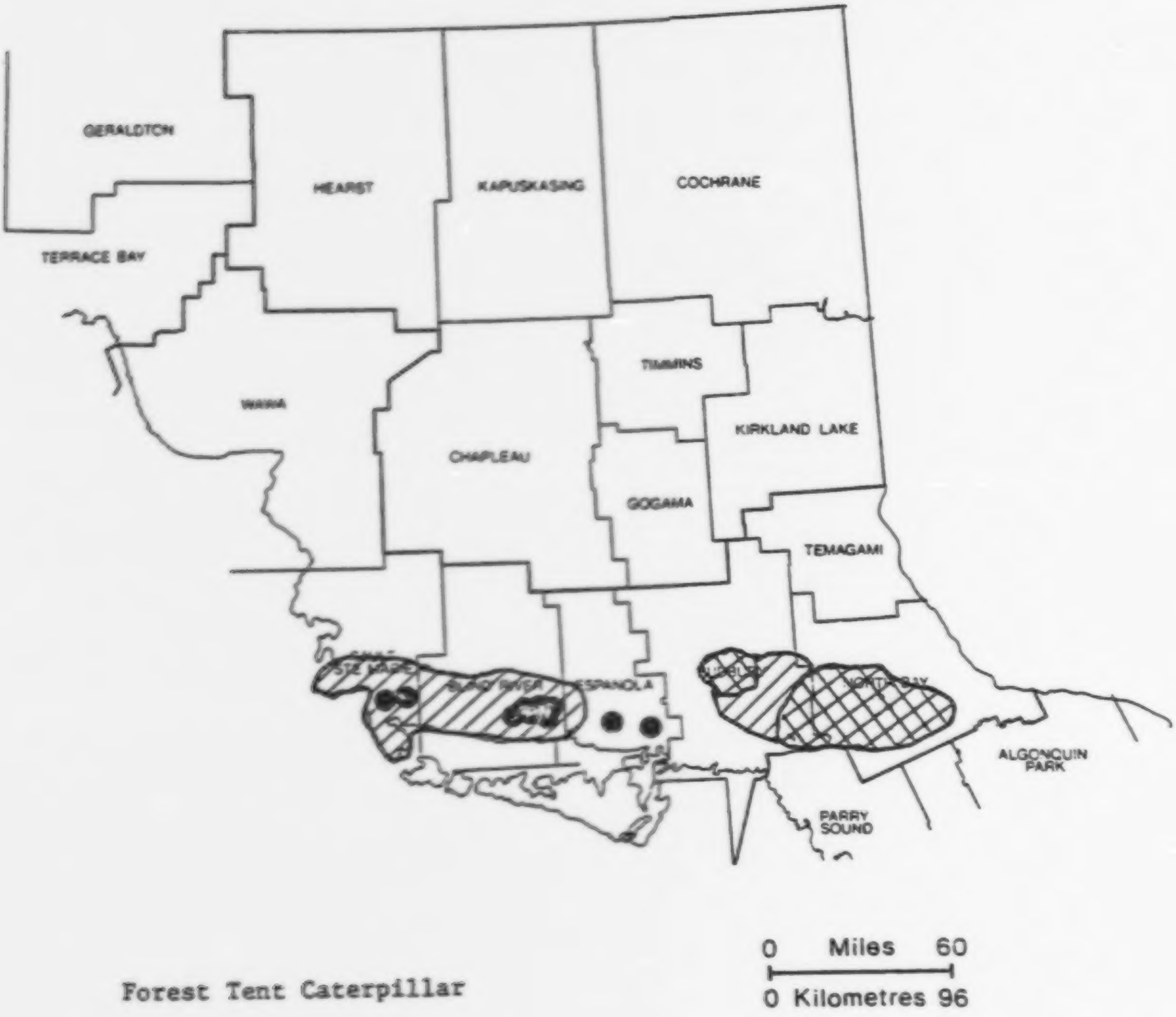
Areas within which defoliation occurred in 1965

LEGEND

Light defoliation ① or ▨

Moderate-to-severe defoliation ▩

NORTHEASTERN ONTARIO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TEMAGAMI
SAULT STE MARIE
BLIND RIVER
ESPANOLA
SUDBURY
NORTH BAY
ALGONQUIN PARK
PARRY SOUND
0 Miles 60
0 Kilometres 96

Forest Tent Caterpillar

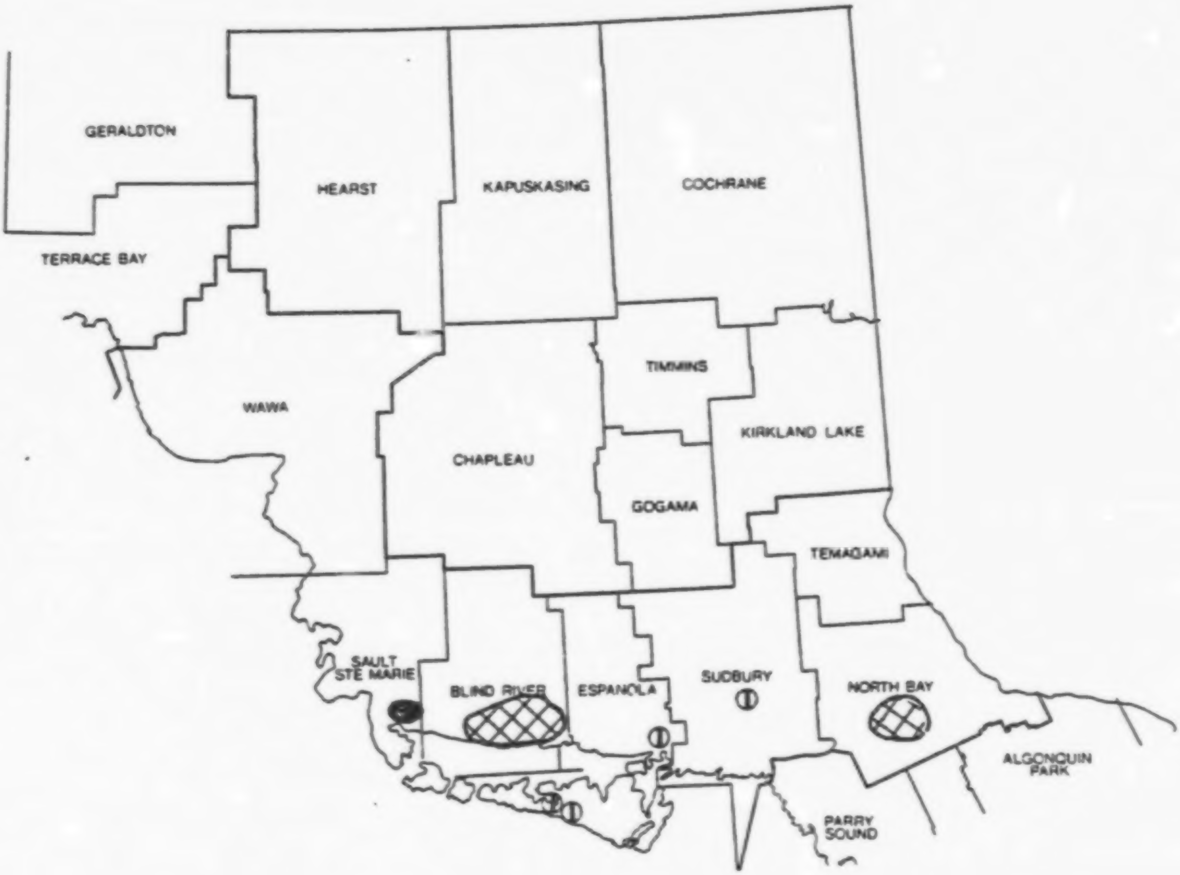
Areas within which defoliation occurred in 1966

LEGEND

Light defoliation ▨

Moderate-to-severe defoliation ● or ▦

NORTHEASTERN ONTARIO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GOGAMA
TEMAGAMI
SAULT STE MARIE
BLIND RIVER
ESPANOLA
SUDBURY
NORTH BAY
ALGONQUIN PARK
PARRY SOUND

0 Miles 60
0 Kilometres 96

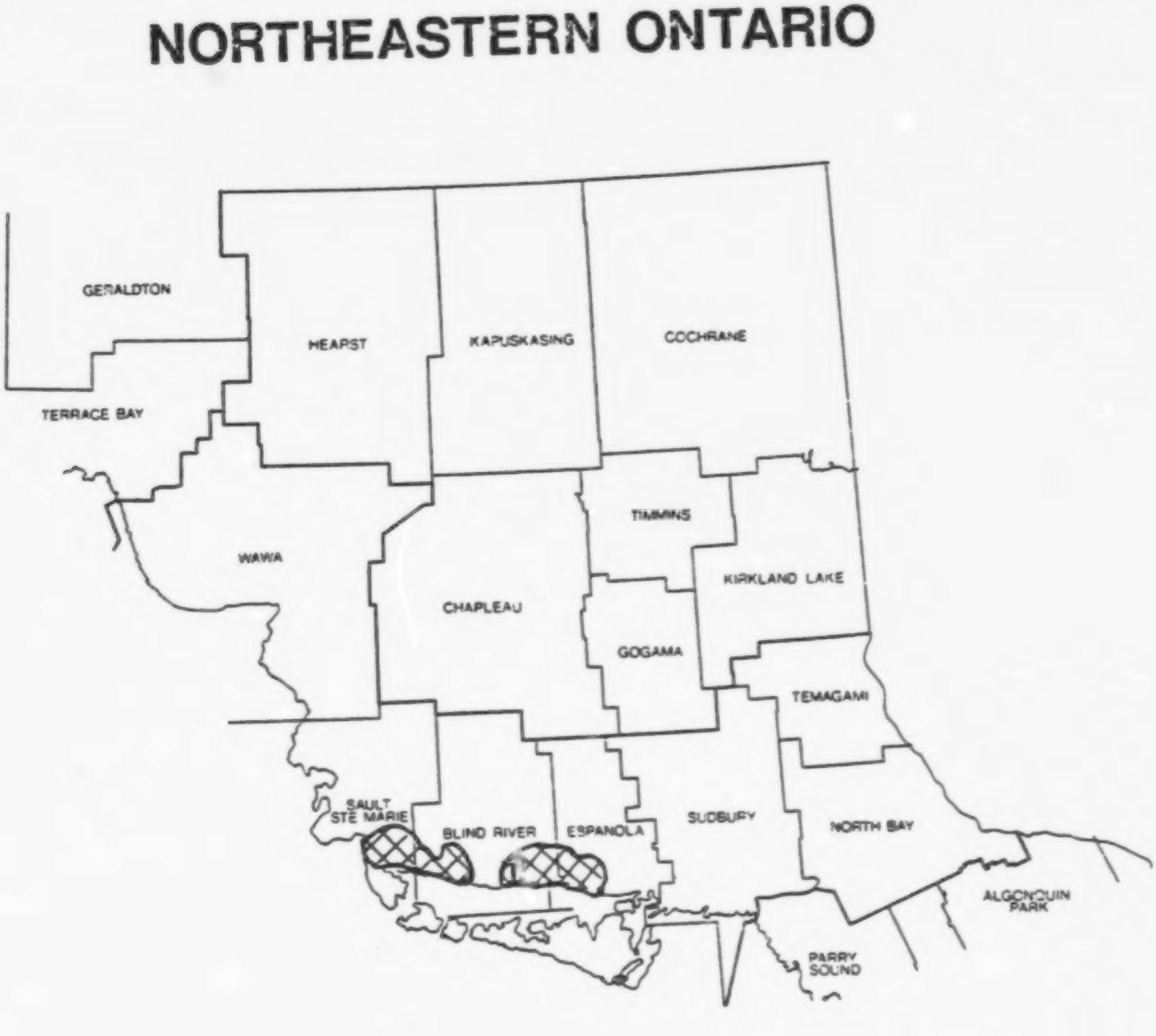
Forest Tent Caterpillar

Areas within which defoliation occurred in 1967

LEGEND

Light defoliation ⦶

Moderate-to-severe defoliation ● or ▨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GOGAMA
TEMAGAMI
SAULT STE MARIE
BLIND RIVER
ESPANOLA
SUDBURY
NORTH BAY
ALGONQUIN PARK
PARRY SOUND
0 Miles 60
0 Kilometres 96

Forest Tent Caterpillar

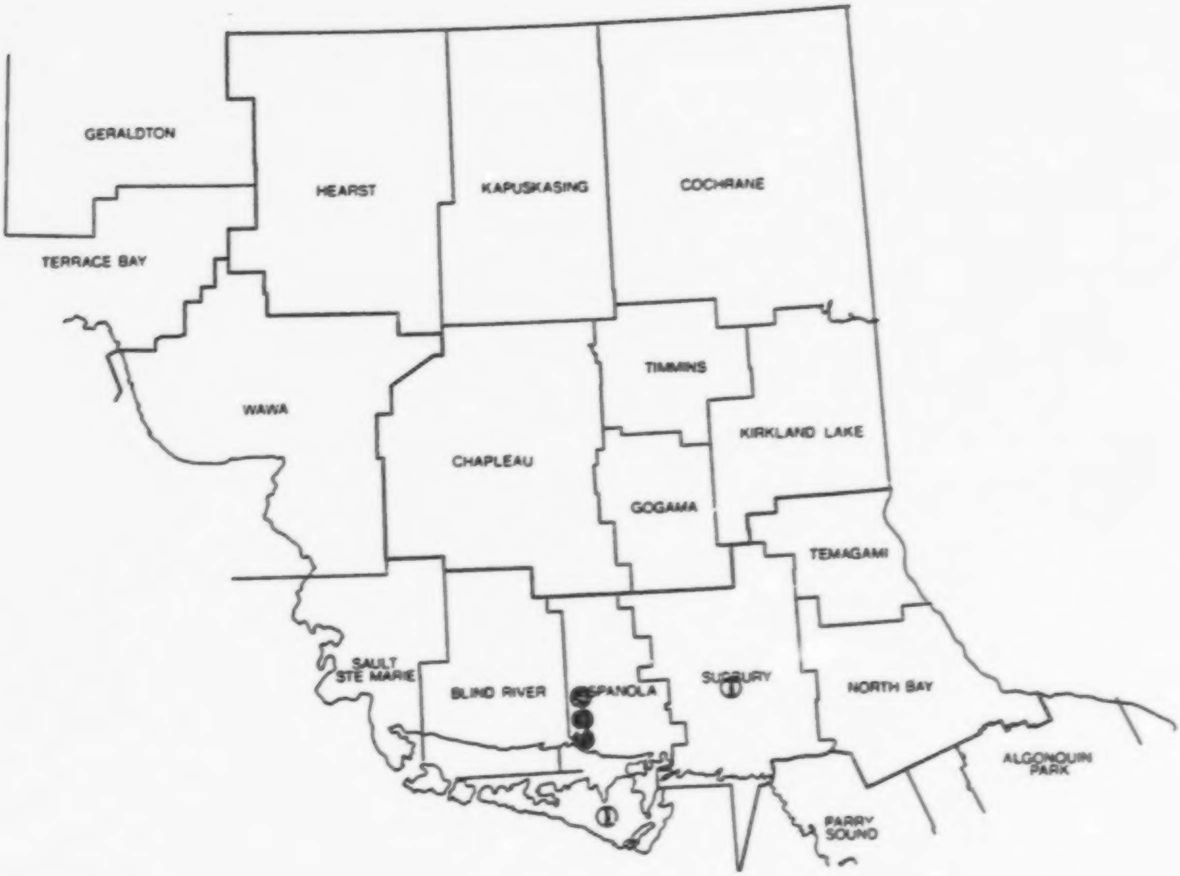
Areas within which defoliation
occurred in 1968

LEGEND

Light defoliation ⦶

Moderate-to-severe defoliation ▨

NORTHEASTERN ONTARIO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TEMAGAMI
SAULT STE MARIE
BLIND RIVER
ESPANOLA
SUDBURY
NORTH BAY
ALGONQUIN PARK
PARRY SOUND

Forest Tent Caterpillar

Areas within which defoliation occurred in 1969

LEGEND

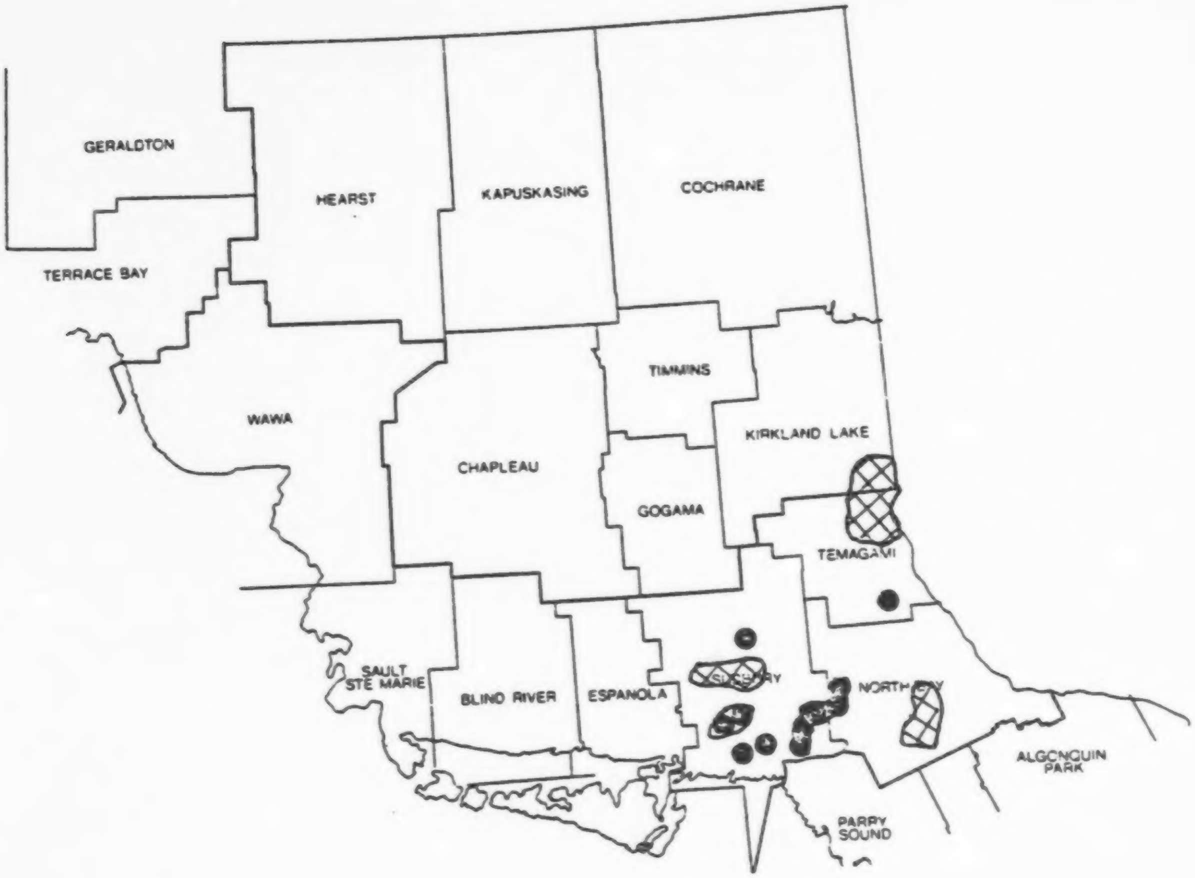
Light defoliation ⦶

Moderate-to-severe defoliation ●

0 Miles 60

0 Kilometres 96

NORTHEASTERN ONTARIO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TEMAGAMI
SAULT STE MARIE
BLIND RIVER
ESPANOLA
SUDBURY
NORTH BAY
ALGONQUIN PARK
PARRY SOUND

0 Miles 60
0 Kilometres 96

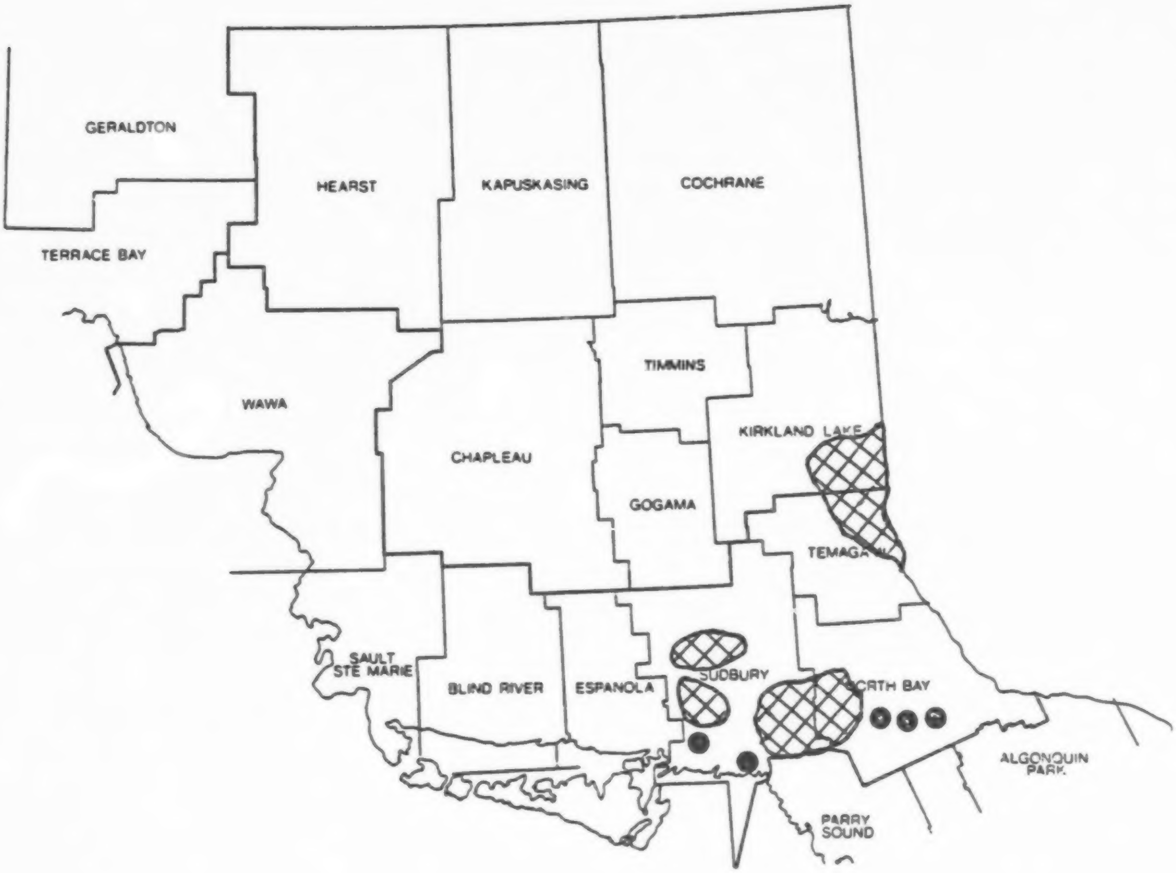
Forest Tent Caterpillar

Areas within which defoliation occurred in 1973

LEGEND

Moderate-to-severe defoliation ● or ▨

NORTHEASTERN ONTARIO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TEMAGAMI
SAULT STE MARIE
BLIND RIVER
ESPANOLA
SUDBURY
NORTH BAY
ALGONQUIN PARK
PARRY SOUND

Forest Tent Caterpillar

0 Miles 60

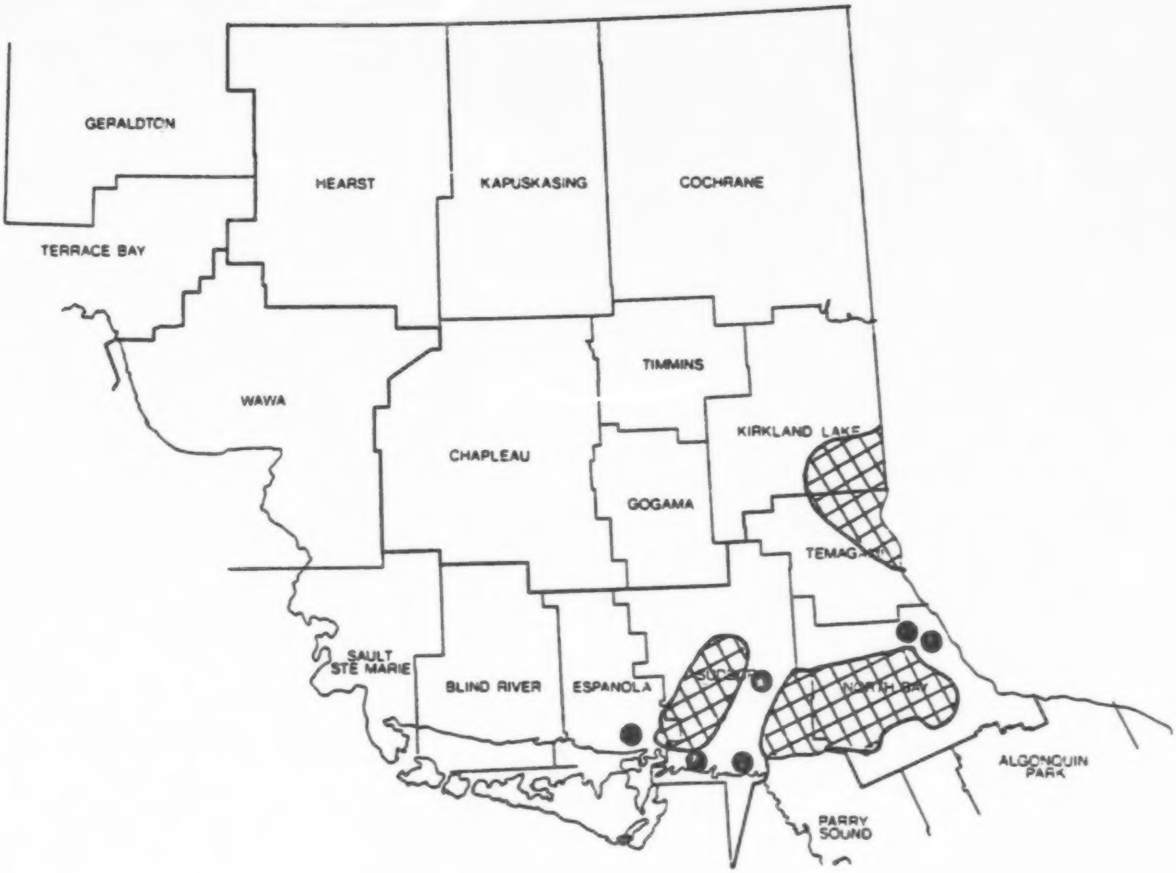
0 Kilometres 96

Areas within which defoliation occurred in 1974

LEGEND

Moderate-to-severe defoliation ● or ▨

NORTHEASTERN ONTARIO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SAULT STE MARIE
BLIND RIVER
ESPANOLA
SUDBURY
NORTH BAY
ALGONQUIN PARK
PARRY SOUND
0 Miles 60
0 Kilometres 96

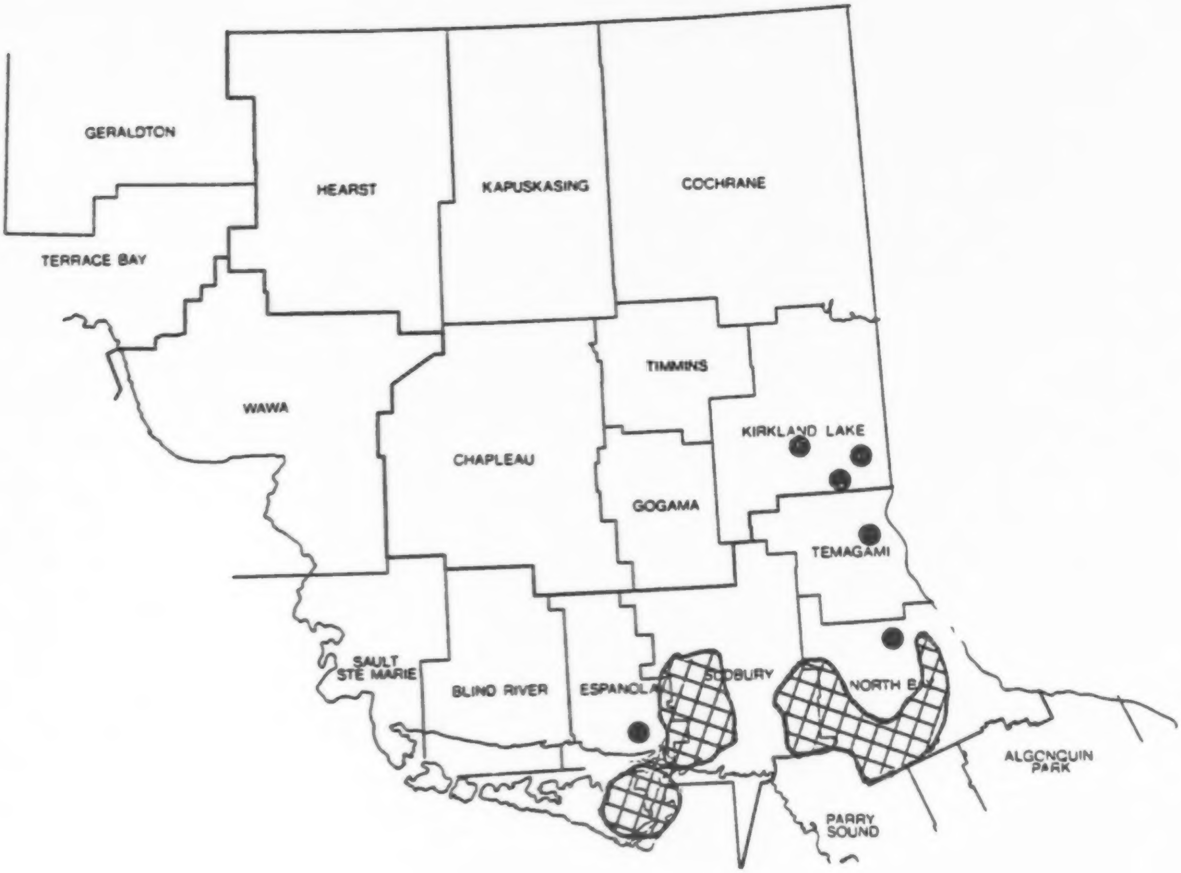
Forest Tent Caterpillar

Areas within which defoliation occurred in 1975

LEGEND

Moderate-to-severe defoliation ● or ▨

NORTHEASTERN ONTARIO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SAULT STE MARIE
BLIND RIVER
ESPANOLA
SUDBURY
NORTH BAY
ALGONQUIN PARK
PARRY SOUND
0 Miles 60
0 Kilometres 96

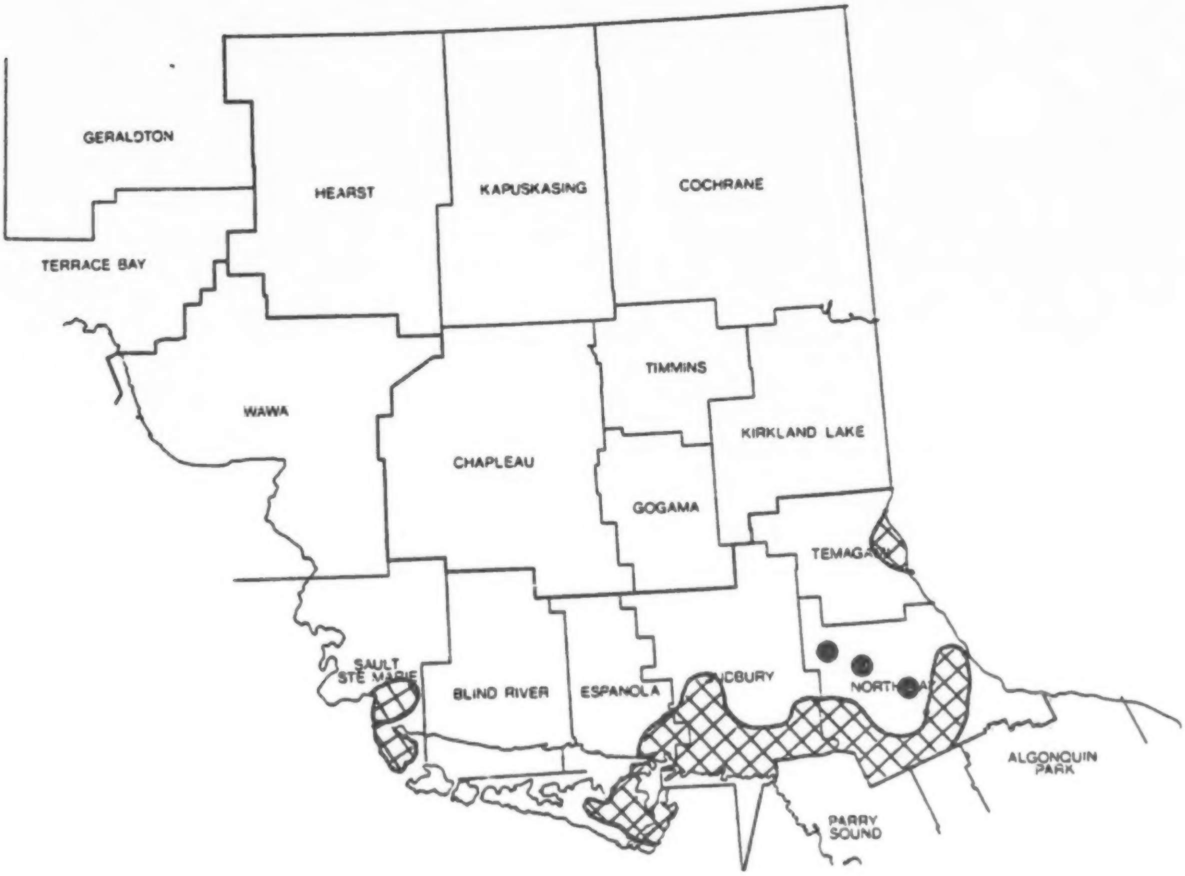
Forest Tent Caterpillar

Areas within which defoliation occurred in 1976

LEGEND

Moderate-to-severe defoliation ● or ▨

NORTHEASTERN ONTARIO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TEMAGA
SAULT STE MARIE
BLIND RIVER
ESPANOLA
UDBURY
NORTH
ALGONQUIN PARK
PARRY SOUND
0 Miles 60
0 Kilometres 96

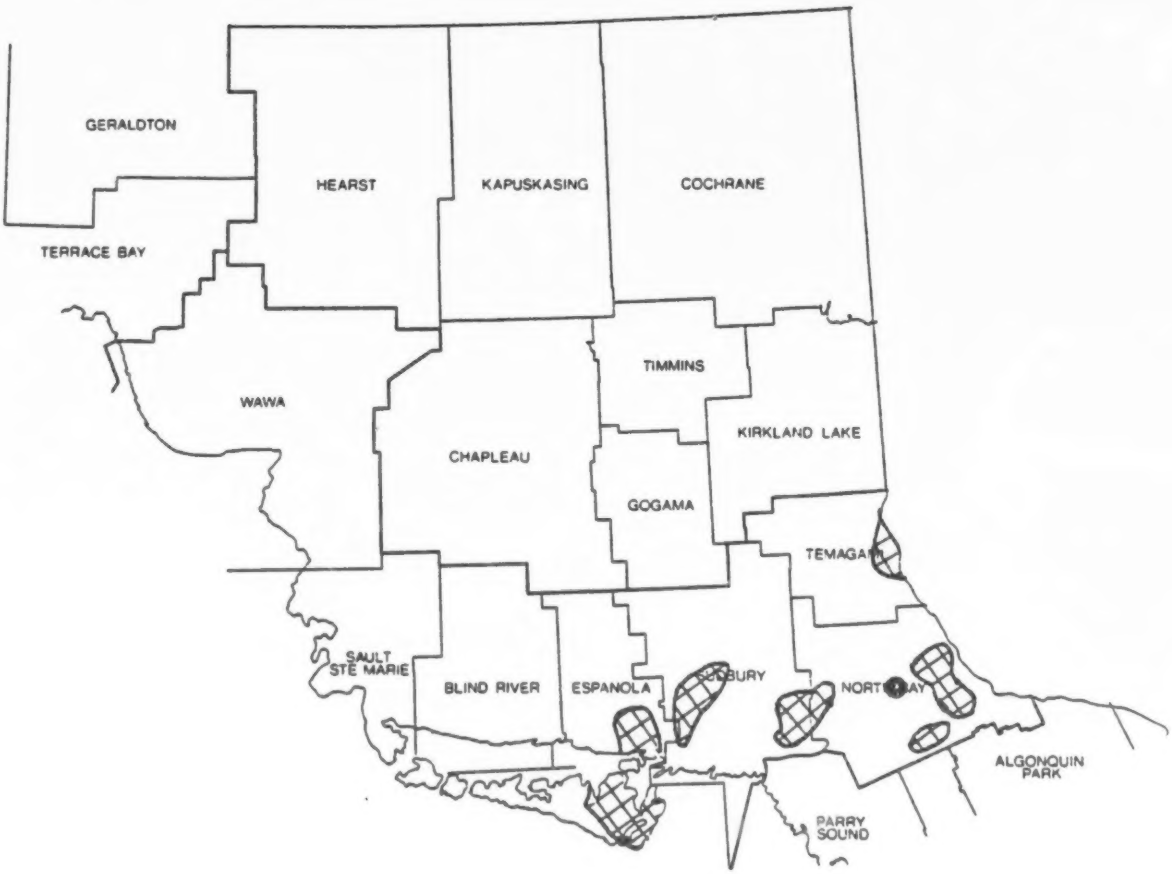
Forest Tent Caterpillar

Areas within which defoliation
occurred in 1977

LEGEND

Moderate-to-severe defoliation ● or ▨

NORTHEASTERN ONTARIO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SAULT STE MARIE
BLIND RIVER
ESPANOLA
SUDBURY
NORTH BAY
ALGONQUIN PARK
PARRY SOUND
0 Miles 60
0 Kilometres 96

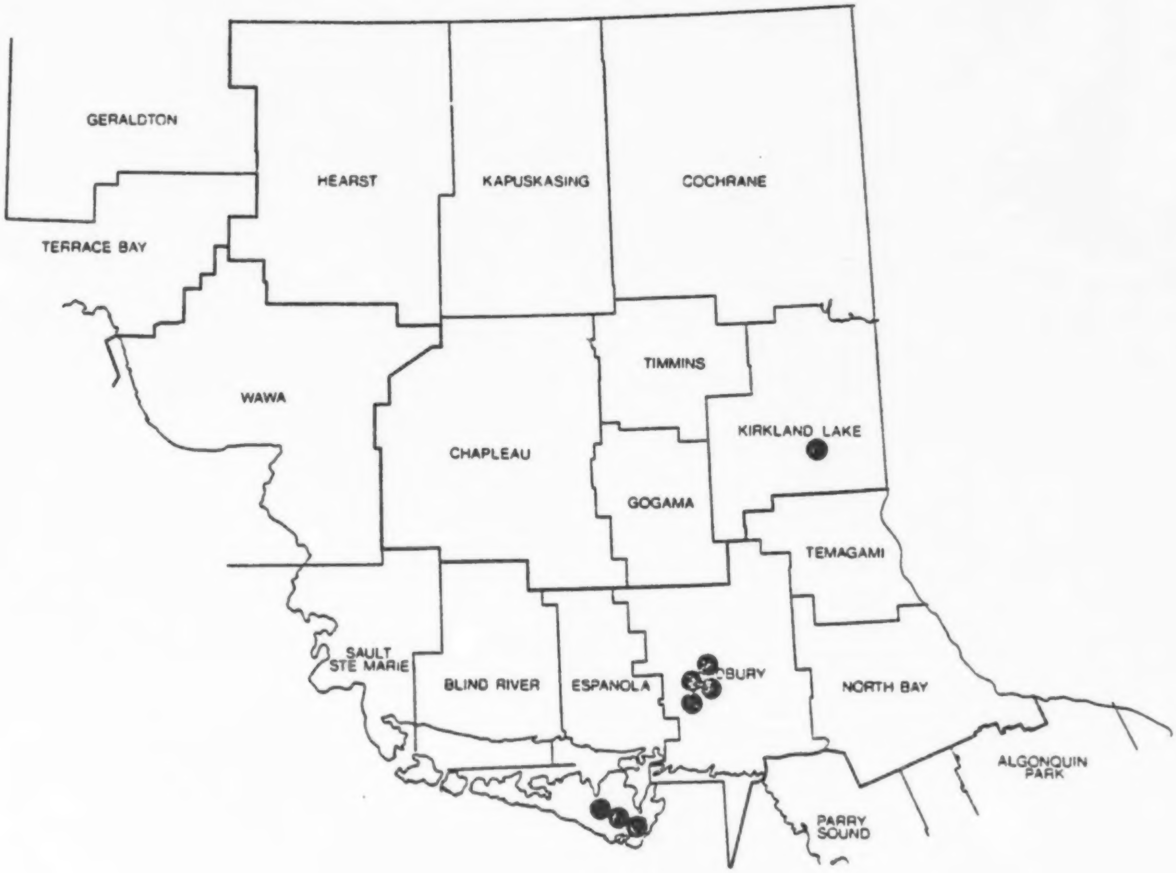
Forest Tent Caterpillar

Areas within which defoliation occurred in 1978

LEGEND

Moderate-to-severe defoliation ● or ▨

NORTHEASTERN ONTARIO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SAULT STE MARIE
BLIND RIVER
ESPANOLA
DBURY
NORTH BAY
ALGONQUIN PARK
PARRY SOUND

Forest Tent Caterpillar

0 Miles 60

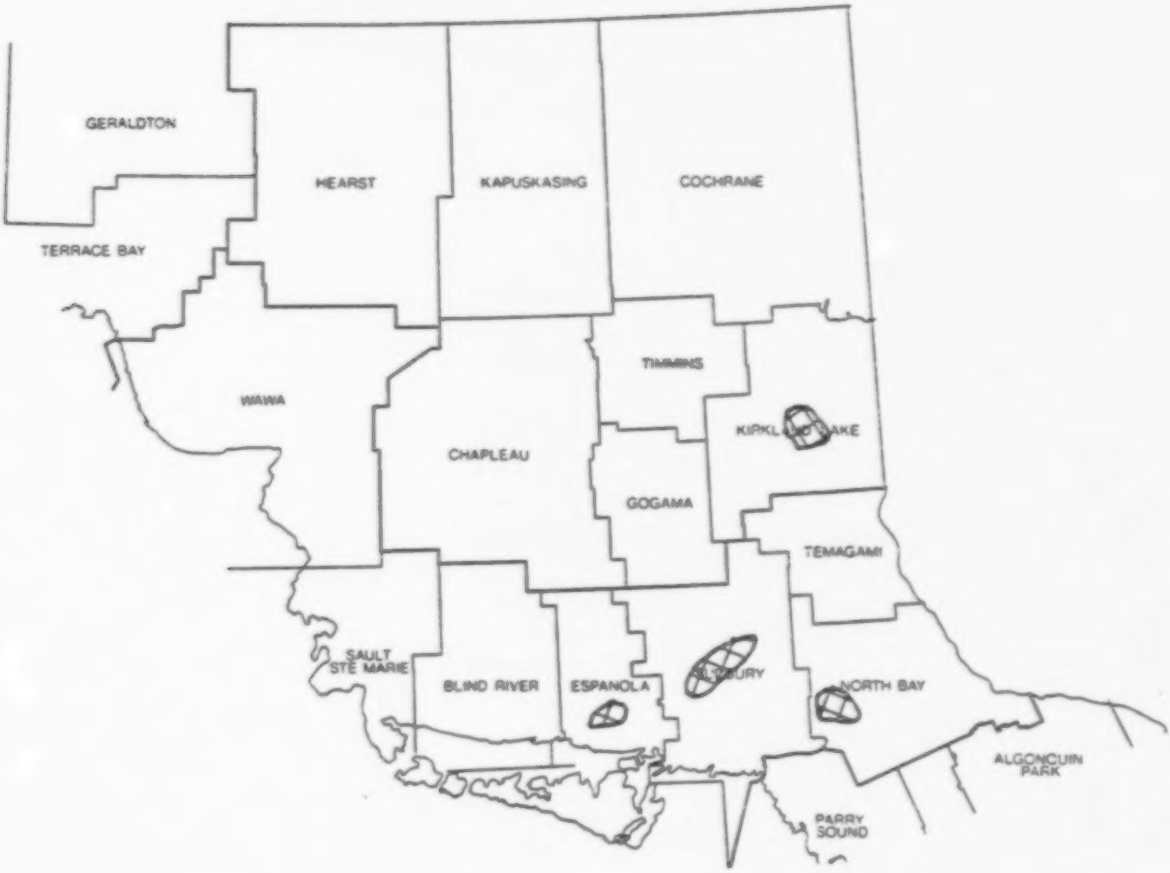
0 Kilometres 96

Areas within which defoliation occurred in 1979

LEGEND

Moderate-to-severe defoliation ●

NORTHEASTERN ONTARIO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SAULT STE MARIE
BLIND RIVER
ESPANOLA
SUDBURY
NORTH BAY
ALGONQUIN PARK
PARRY SOUND

0 Miles 60
0 Kilometres 96

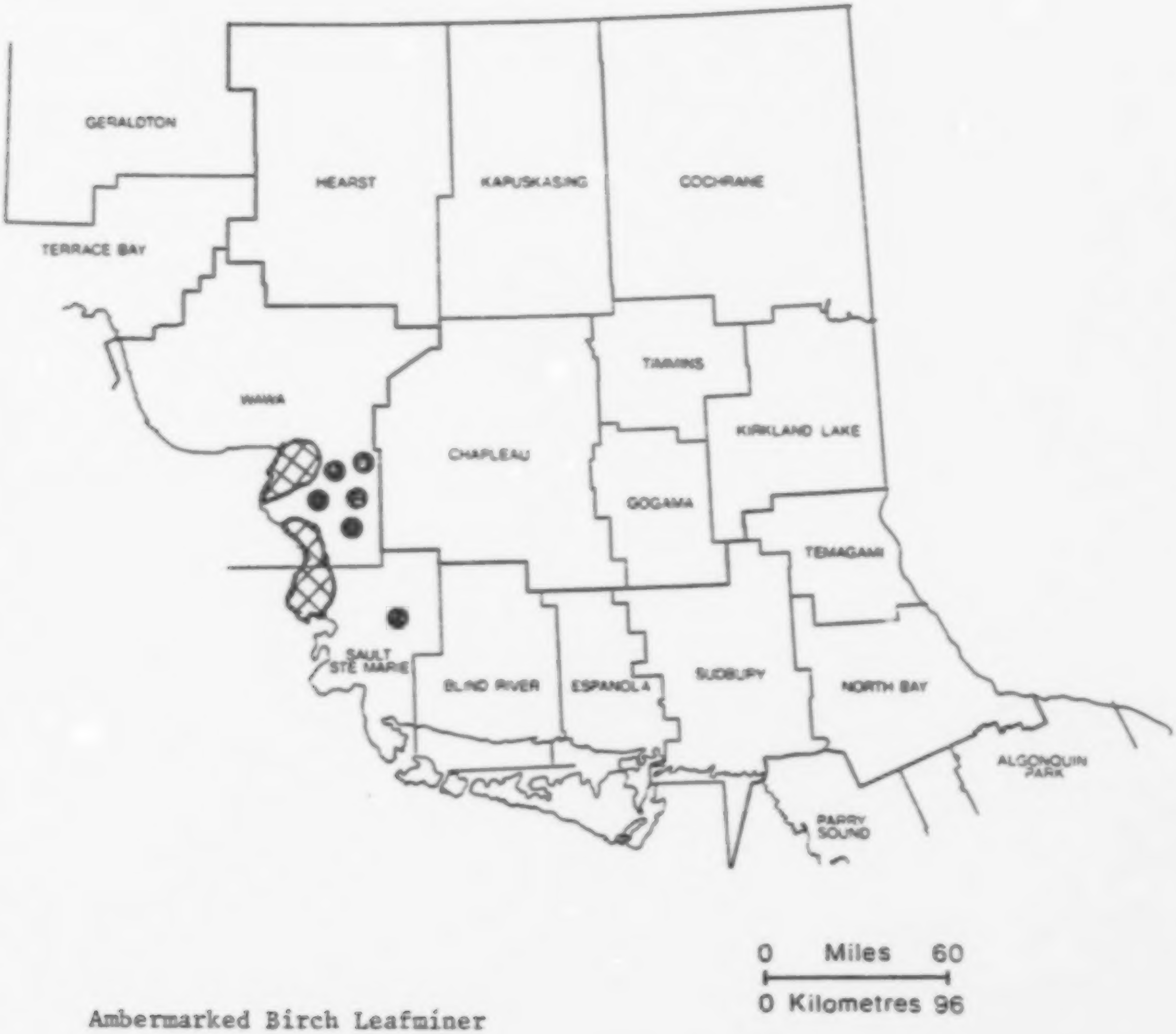
Forest Tent Caterpillar

Areas within which defoliation occurred in 1980

LEGEND

Moderate-to-severe defoliation ▨

NORTHEASTERN ONTARIO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TEMAGAMI
SAULT STE MARIE
BLIND RIVER
ESPANOLA
SUDBURY
NORTH BAY
ALGONQUIN PARK
PARRY SOUND
0 Miles 60
0 Kilometres 96

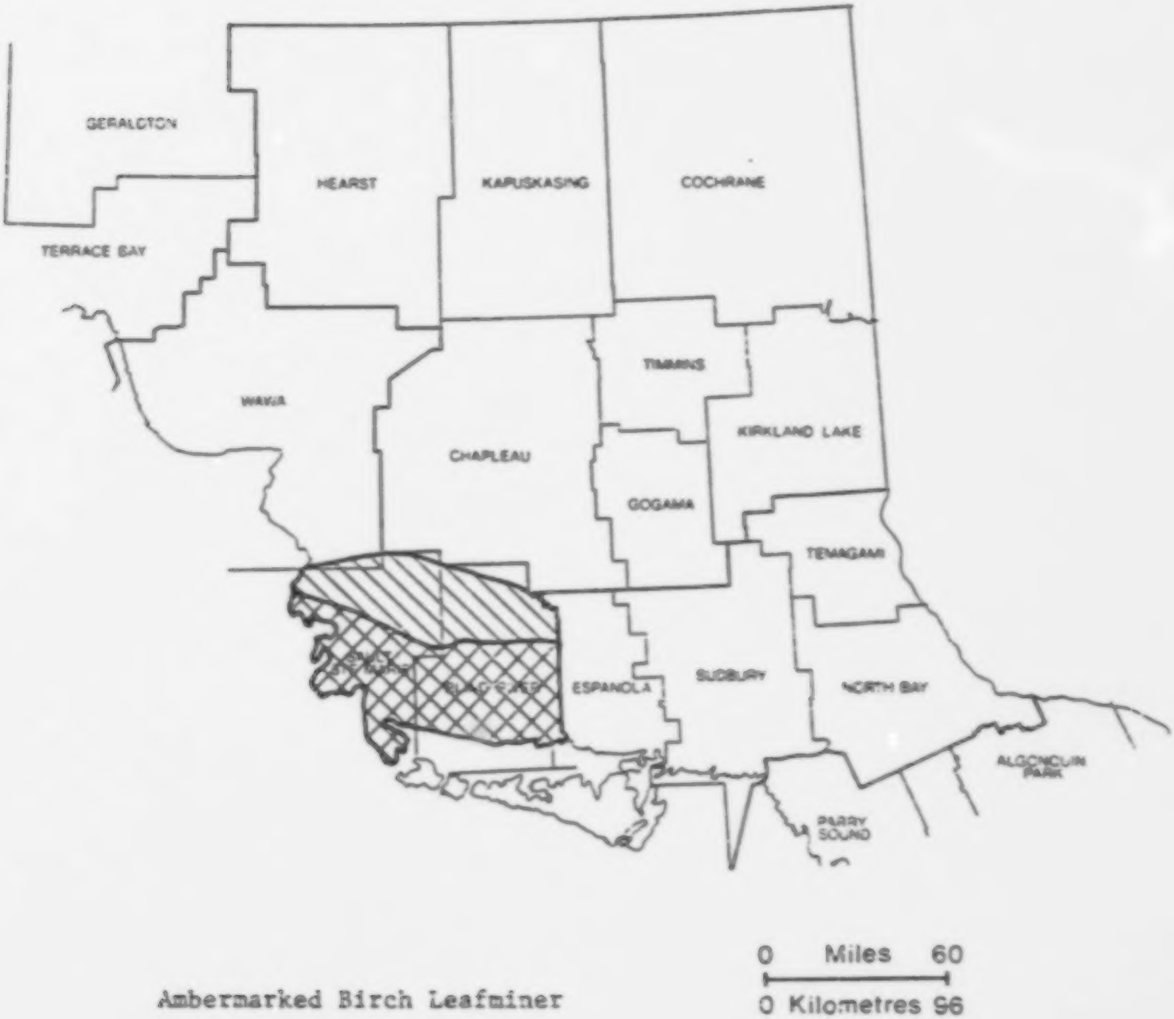
Ambermarked Birch Leafminer

Areas with which defoliation
occurred in 1958

LEGEND

Moderate-to-severe defoliation ● or ▨

NORTHEASTERN ONTARIO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TEMAGAMI
SAULT STE. MARIE
BLIND RIVER
ESPANOLA
SUDBURY
NORTH BAY
ALGONQUIN PARK
PARRY SOUND
0 Miles 60
0 Kilometres 96

Ambermarked Birch Leafminer

Areas within which defoliation occurred in 1960

LEGEND

Light defoliation ▨

Moderate-to-severe defoliation ▩